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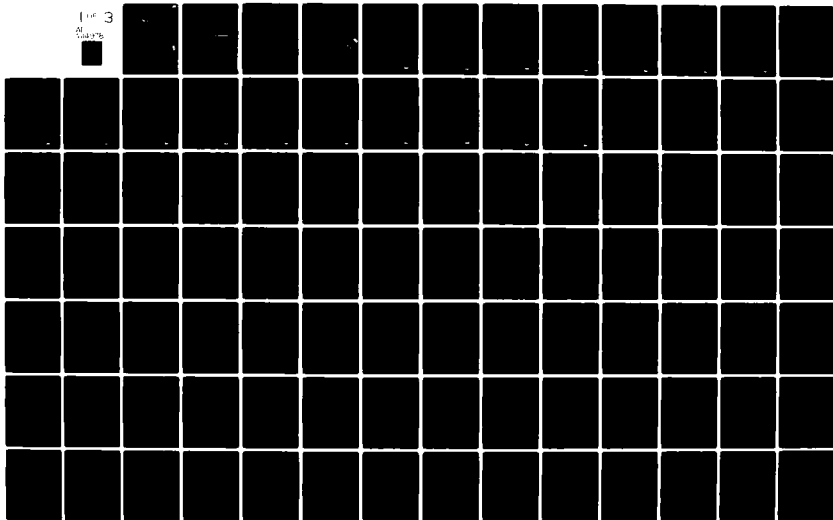
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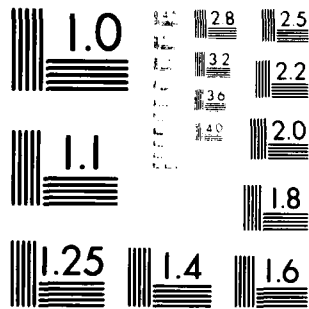
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CR 82.014

NAVAL CIVIL ENGINEERING LABORATORY
Port Hueneme, California

Sponsored by
NAVAL FACILITIES ENGINEERING COMMAND

TEST CASES FOR SEADYN VERIFICATION

April 1982

An Investigation Conducted by
Western Instruments Corp.
540 Maulhardt Avenue
Oxnard, California

N68305-80-C-0004

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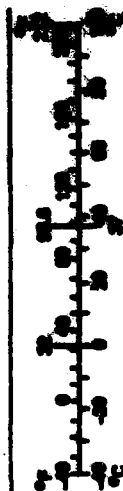
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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures			
Symbol	When You Know	Multiply by	To Find
Length	inches	2.5	centimeters
	feet	30	centimeters
	yards	0.9	meters
	miles	1.6	kilometers
Area	square inches	6.5	square centimeters
	square feet	0.09	square meters
	square yards	0.8	square meters
	square miles	2.6	square kilometers
Mass (weight)	ounces	28	grams
	pounds	0.45	kilograms
	short tons (2,000 lb)	0.9	tonnes
Volume	teaspoons	5	milliliters
	tablespoons	15	milliliters
	fluid ounces	30	milliliters
	cups	0.24	liters
Temperature (temp)	pints	0.47	liters
	quarts	0.95	liters
	gallons	3.8	liters
	cubic feet	0.03	cubic meters
Temperature (temp)	cubic yards	0.76	cubic meters

*1 in = 2.54 (exactly). For other unit conversions and more detailed tables, see 1965 Metric Table, 250, Units of Weight and Measure, Price \$2.25, ED Catalog No. 013-10-250.

Approximate Conversions from Metric Measures			
Symbol	When You Know	Multiply by	To Find
Length	centimeters	0.04	inches
	centimeters	0.4	inches
	meters	3.3	feet
	kilometers	1.1	miles
Area	square centimeters	0.16	square inches
	square meters	1.2	square yards
	square kilometers	0.4	square miles
	hectares (10,000 m ²)	2.5	acres
Mass (weight)	grams	0.005	ounces
	kilograms	2.2	pounds
	tonnes (1,000 kg)	1.1	short tons
Volume	milliliters	0.03	fluid ounces
	liters	2.1	pints
	liters	1.06	quarts
	liters	0.26	gallons
Temperature (temp)	cubic meters	26	cubic feet
	cubic meters	1.3	cubic yards



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20. ABSTRACT (Continue on reverse side if necessary, and identify by block number) This report includes actual input decks and associated outputs for demonstration of the SEADYN cable dynamics computer model. The input problems are intended to allow for the verification of the model if it is transferred for operation on non-CDC computers.		

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Table 1 - Baseline Capability Matrix

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SEADYN CONFIGURATION MANAGEMENT

1.0 INTRODUCTION

The SEADYN configuration management plan described herein was developed for the Naval Civil Engineering Laboratory under contract No. N68305-80-C-0004, entitled "Engineering Services for Cable Dynamics." A statement of work may be found in Appendix A.

1.1 SEADYN Development History

In the early 1970's, the U.S. Navy gained increasing interest in complex undersea cable structures. This interest led, in 1974, to the development of the SEADYN Ocean Cable Systems Analysis Program. The early development of SEADYN was based upon existing non-linear structural dynamics programs and the developments from that point introduced program capabilities specifically directed at supporting the Navy's Suspended Array development. This early work was sponsored by the Naval Facilities Engineering Command and the Naval Electronics Systems Command.

Following this early developmental work, the Civil Engineering Laboratory assumed leadership in bringing the SEADYN program to an operational status. This included the addition of program capabilities which expanded the scope of the simulation and which improved the ease of program application. This work also incorporated extensive verification and validation tests and thorough program documentation.

The SEADYN program has over the past four years been exercised, verified, and validated on a wide range of structural applications for the Navy and



for the Offshore Oil Industry. Typical examples of the structural configurations addressed are shown in Figure 1.

1.2 Purpose of Present Effort

As the SEADYN program undergoes continual modification and revision, the need to define current program capabilities is apparent. The present effort is aimed at defining which SEADYN capabilities are currently available. This has been done through the development of a set of test problems which have been used to comprehensively test a wide range of SEADYN capabilities. These test cases have been devised in such a way that they may be used to verify updated versions of SEADYN.

As the SEADYN program is introduced to wider application and public dissemination, new program features will be incorporated into the program and programming errors will be found and corrected in the present code. It is important that the incorporation of new program features and the correction of errors in the code be effected in a controlled fashion. Proper check-out of the new code must be performed prior to introduction into the operational and publicly available program. To this end, a configuration management plan has been prepared which defines a mechanism for controlling program revisions and updates before incorporating them into the standard operational version.



2.0 BASELINE CAPABILITY DEFINITION

At present there exist two configurations of the SEADYN program, fixed format and free format. The fixed format version was developed first and has been used in the analysis of a full range of Navy and Oil Industry undersea compliant structure applications. The free format version is based on the original fixed format, but the input has been modified so as to be far less restrictive to the user. Along with the development of the free format input, various modifications have been made to fundamental as well as optional program capabilities. The free format version of SEADYN has replaced the fixed input version, primarily due to increased programming flexibility and simplicity. The fixed format version has been verified previously. The objective of the test problems in this report is to verify the free format version.

The SEADYN program is capable of analyzing a wide range of offshore compliant structures, primarily those that incorporate cable elements. The present verification effort addresses such simulations as the resultant structural loadings associated with displacements induced by platform motions, displacements and tensions caused by current and gravity, and behavior of a cable system during payout or reel-in. The analytical capabilities of SEADYN can be divided into three major types: static analysis, dynamic analysis, and mode analysis.

2.1 Static Analysis Capability

A major emphasis in the testing of the SEADYN static solution capability is the demonstration of the ease with which a static configuration can be developed. There are several approaches to arriving at a static configuration,



including the input of a known loaded structural shape and its associated tensions, the input of a guessed loaded configuration and unknown pretensions, and the input of an unstressed configuration that will be moved into a deformed position during the subsequent analysis. Only the relative element lengths, weights, and attachment coordinates need to be known in order to arrive at a good static solution. Static solution tests have also been aimed at verifying the several numerical solution methods available in the SEADYN program.

2.2 Dynamic Analysis Capability

SEADYN is capable of simulating almost any dynamic loading that might occur offshore. Dynamic loadings are primarily accomplished through the use of the moving boundary and point load options, where any time function may be defined by the user. The amplitude of the motion may be input as displacement, velocity, or acceleration. Dynamic loadings other than specified boundary motions can be handled by program options that model such things as fluid flow fields and payout and reel-in. The dynamic effects of gravity can also be incorporated into any analysis, for example, in the analysis of a free falling anchor. The program is expected to provide information concerning dynamic tension variations in the cable elements, displacements of each node point during the analysis period, and behavior of lumped bodies such as anchors and buoys as they interact with the seafloor and the water surface. Dynamic response is analyzed in a time domain solution. The user has control over time steps, printout periods, and specific solution method parameters such as numerical damping and convergence tolerances. Solution parameters will vary with the nature of the problem being solved, and their



definition is often arrived at by educated guess. The test cases included in this report utilize various methods of arriving at solutions to difficult numerical problems. They should be used as a guide in obtaining similar solutions in the further verification of SEADYN configurations.

2.3 Mode Solution

The MODE analysis option is available to enable the user to identify significant modes of structural response for any structural configuration. This information directs the analyst toward identifying the worst loading conditions and possible structural mechanisms. This becomes of major importance when dealing with complex systems.

2.4 Baseline Capability Matrix

The baseline capability matrix is included as Table 1. The first column identifies those capabilities that currently exist in the free format version of SEADYN. Each of the capabilities listed have been tested by the baseline problems. The second column indicates the appropriate reference in the most recent input manual, dated May, 1981. A detailed explanation of each capability can be found in the notes of the references. The third column indicates which options have been verified by the five test cases. A capability is considered to be operational when the results of the analysis show a clear and intended system response. This is to say that generated catenaries should show continuity in configuration and internal loading, that an imposed displacement should result in the intended boundary locations, and that the variation of physical parameters should affect the system in a manner that can be anticipated. Verification of numerical solution methods



is more difficult, especially with regard to dynamic analysis. Once the MODE analysis was verified on a simple system it was used as an aid in interpreting the dynamic response attained during the analysis. Clear verification of more complex analyses was not entirely possible. Because of this, the simpler test cases were used to verify the solution option capabilities.

The manual dated May, 1981, is not entirely accurate with respect to input data. Several significant changes have been made in the last few months, so that a new manual should be issued. The capabilities discussed in the manual and as included in the matrix of Table 1 are working with the exception of modelling a cylinder. The program finds no solution when a cylinder is used in place of a sphere. The solution tends to diverge. This capability was tested in Case number 3.

One inconsistency in the manual that should be noted is that the payout length as defined in the manual is not correct. The manual states that a node will be payed out when the length of the payout element equals twice the mitosis length. In fact, payout occurs when the payout element equals the original element length plus the mitosis length. The listings that are included in Appendix B represent cases that successfully verify specific capabilities.



3.0 TEST CASES

The test cases are intended to demonstrate current capabilities of the program. These cases can be used for comparison when verifying future versions of the program. Listings of the input and output for each problem may be found in Appendix B. Descriptive sketches have been provided in Figures 2-4.

3.1 Single D.O.F. Test Case - Sudden Release

The primary objectives of this test are to exercise the various numerical solutions in dead load analysis and dynamic analysis, and to test the restart capabilities of SEADYN. The initial configuration is input as a stretched condition with pretensions in the two cable elements known. The weight at the center is released under gravity loading during the dynamic analysis. The Direct Integration method was most successful in reaching a solution, even when the analysis was begun with no previous dead load solution. The Modified Newton-Raphson method was good only for dead load analysis, and in fact necessary before the Residual Feedback method could produce a dynamic solution. Restart capabilities checked out as expected.

3.2 Single D.O.F. Test Case - Imposed Displacement

The intent of this case was to continue testing the Viscous Relaxation Technique. The model was the same configuration used in Test Case number 1, with one anchor point being moved past the second support. The imposed displacement response in static analysis behaved as intended.

3.3 Single D.O.F. Test Case - Pendulum

This test case was used to test many miscellaneous capabilities because of



its inherent simplicity. The reference case consists of a submerged pendulum, formed by a spherical mass. A uniform current acts along the length of the cable element and mass, while an opposing point load is applied at the sphere. The TFNUSR subroutine is used to input a sine motion to the point load. Variations on this problem are listed in Figure 3. The attempt to replace the sphere with a cylinder failed. The program did not converge for this simple case. Dr. Webster has been informed of this problem.

3.4 Cable Laying Test Case

The major purpose of this test case was to check out the payout capability of the program and to verify the catenary generation option. The first payout problem involved payout from a moving vessel. The catenary was generated by the program, given the first and last nodal positions. The program estimated pretensions from the material properties of the cable elements and the given nodal positions. The payout capability worked correctly, except as noted in Section 2.4.

3.5 Catenary Test Case

The objectives of this case were to test catenary generation, allowing the cable to sag, to test motion inputs at a surface buoy and to test the release of anchors near the seafloor. A catenary that was supported at one end by a surface buoy and the other by a submerged fixed point was generated successfully by the program. Imposed displacements were applied to the buoy dynamically using TFNUSR. The moving boundary option performed correctly. The top node representing the buoy was held fixed in order to find a dead load solution for the catenary. The buoy was then freed in the horizontal direction and an harmonic function was input successfully.



4.0 CONFIGURATION MANAGEMENT PLAN

The purpose of a configuration management plan is to document a mechanism by which corrections, additions and updates to the SEADYN program may be introduced to the publicly available versions in an orderly fashion. Three distinct configurations of the program should be maintained by NCEL. In order of decreasing permanence, these may be defined as an operational version, a test version and a developmental version.

4.1 Support of Operational Capability

An operational version of the program must be maintained which exhibits only those capabilities that have been verified. This is the version of the program that will be used on a daily basis by NCEL and public users for structural analysis. It is important that one verified version always be available. Through continued use of the program, program errors will probably be discovered. Corrections to the coding should be made on test versions of the program and later introduced to the main operational program. Support work will involve continued verification of the present operational version, identification of coding errors found through internal and public usage, and the introduction of corrections, updates, and new developments to the operational version.

4.2 Application of Test Cases

A test version of the program is required for two purposes, one being the testing of major revisions as they become available from the developmental configuration; the other purpose being the testing of minor coding error corrections, which can be corrected directly on this version.



4.3 Program Development Support

Program development will be geared toward accommodating operational requirements for new solution capabilities, and toward providing better program efficiency. This may include major restructuring of the present configuration, affecting input specifications as well as internal sub-routine solutions. It is important that a separate file be available for major modifications and additions. It is equally important that new developments be well documented in so far as their effect on the existing program and input specification is concerned. Support for program development involves identification of required new capabilities, evaluation of present program efficiency, implementation of these changes, and documentation of all changes to the original version of the program.

4.4 Configuration Management Structure

SEADYN management should be based on a three version system as described above. NCEL would designate an in-house or contract coordinator who would receive input from users concerning desired new capabilities, errors found in the operational version, and the degree of program efficiency. This coordinator would perform the operational support functions presented in Section 4.1 and coordinate the activities of a configuration management contractor with the needs of the users.

The configuration management coordinator will work with a program development contractor, presumably the author of SEADYN, to update and correct the program using the developmental and test versions. After modifications have been completed at the developmental level, the configuration management coordinator



will be responsible for completing documentation of the modifications, and thoroughly testing the revised program using the test version. During the verification work there will no doubt be extensive interaction between the coordinator and the development contractor until the new configuration is completely verified. The configuration management coordinator should have responsibility for introducing the revised operational version and distributing the updated user's manuals.



5.0 SUMMARY

Within the scope of the present effort a baseline capability has been defined for the SEADYN program fixed format version. These capabilities, as itemized in matrix form, have been verified by test cases, designed to exercise all user accessed options. The test problems are intended to be used as a standard in the verification of future program modifications.

A plan for implementing these modifications in a controlled manner has been suggested. The plan is based on the recognition of the need to continually maintain a verified operational version of SEADYN. Implementing a configuration management plan which incorporates standard tests should enable NCEL to meet the requirements of its SEADYN users with a minimum amount of effort.



APPENDIX A
WORK STATEMENT



STATEMENT OF WORK
ENGINEERING SERVICES FOR CABLE DYNAMICS

80-0004
31 January 1980

1.0 Introduction. The Civil Engineering Laboratory is the Navy's activity with responsibility for research and development related to the siting, design, installation, operation and maintenance of fixed ocean facilities. Many of these facilities take the form of suspended cable structures. CEL has been engaged in a major program of research into the dynamic behavior of cables and moored cable structures in the ocean. A variety of computer simulation models have been developed for analysis and design of these structures. The models are generally complex and specialized and require large main-frame computers for their execution.

2.0 Scope. The contractor shall furnish the necessary services to perform tasks related to the siting, design, construction, installation, inspection, operation, maintenance, and repair of ocean-based facilities. Also, included may be concept formulation, preliminary design, development of plans for experiments, program/project documentation, and reduction of test data. These services shall be for a period of twelve months or until the \$90,000 limit is reached.

3.0 Performance Requirements. Services to be provided shall be accomplished at the contractor's office with the exception of such engineering field investigations or surveys as may be required. No direct supervision of the contractor's employees will be provided by the government.

3.1 Services. Services on the definition and demonstration of the baseline capabilities of the SEADYN computer program by establishment of test cases that: (a) define and test present SEADYN capabilities, and (b) define and test new capabilities before they are added to the baseline shall be provided as follows:

The contractor shall prepare a matrix of present and planned SEADYN capabilities and indicate which of the capabilities have been verified and which have not. The baseline version of the program is defined by the list of present capabilities which have been verified by exercising those capabilities on actual or test problems.

The contractor shall define a set of test cases that, when taken together, will comprehensively exercise the various optional capabilities of SEADYN. The test cases are to be used by the Government to manage program changes, debugging and updating operations by providing a standard means for testing the program. The test cases shall address the existing capabilities of the program (i.e. baseline version) and additional new capabilities separately. The baseline version test cases shall be demonstrated by executing the SEADYN program on those cases.

The contractor shall prepare a configuration management plan for implementing the test cases as part of an overall computer simulation testing and validation program. The plan shall define a mechanism for utilization of the test cases in control of program revisions, updates and debugging.



3.2 Reports. The results of this effort shall be submitted to the Officer in Charge of Contracts, Civil Engineering Laboratory in the form of letter reports. An original (1) and three (3) copies of each report shall be submitted as follows:

- (a) Matrix of present and planned capabilities 45 days after award
- (b) Definition of test cases
 - (i) Present capabilities (including demonstration) 60 days after award
 - (ii) New capabilities 150 days after award
- (c) Configuration management plan 120 days after award

3.3 Computer Usage. The Government will bear directly the cost of computer usage by the contractor for this effort by assigning to the contractor an account number held by the Government on a commercial computing network. The contractor is authorized to make computer simulations required by this contract not to exceed a total cost of \$6,000.

The contractor shall monitor his computer usage under this contract to insure that the authorized computing cost limit is not exceeded and report weekly to the Officer in Charge of Contracts. The report shall consist of either actual dayfiles from the preceeding seven days or an equivalent written itemization of the pertinent dayfile cost and accounting information in \$500 increments.

3.4 "Open-End" Provisions. This is an open-end contract; the total amount of this contract shall not exceed \$90,000 without further authorization. The Minimum contract price will be that negotiated price for the specific services of paragraph 3.1. The additional services which the contractor may be required to furnish and the government to accept hereunder from time to time shall be as ordered by the government during the period of this contract. In any event, however, the government shall order services hereunder having an aggregate value based on the rates specified herein not less than \$100. No single task will exceed \$20,000 per authorization. All task assignments and authorizations to proceed will be issued by the Officer in Charge of Contracts on Standard Form 30 and shall include:

- (1) The date and number of the modification,
- (2) The contract number,
- (3) Description of services, "Statement of Work",
- (4) Delivery dates,
- (5) Accounting and appropriation data.



80-0004

31 January 1980

Prior to issuing the Standard Form 30, the Officer in Charge of Contracts, or his designated representative, shall furnish and discuss with the contractor the statement of work for the task. After which, the contractor, using the predetermined labor classifications and rates set forth in the contract shall submit a firm fixed-price proposal to the Officer in Charge of Contracts. Upon receipt of the contractor's proposal a price for the proposed task will be negotiated. Issuance of a notice to proceed is not authorized, except by Standard Form 30.

An hourly rate plus overhead and profit for personnel in the appropriate categories will be established as part of the contract and will be applicable for the period of the contract.



APPENDIX B
INPUT AND OUTPUT LISTINGS



TABLE 1.

SEADYN BASELINE CAPABILITY (10/80)

CAPABILITY	MANUAL REFERENCE	TEST CASE REFERENCE	VERIFICATION STATUS	REMARKS
GLOBAL CONTROLS				
1. USER DRAG OVERRIDE	6.3	3	✓	
2. GRAVITY DIRECTION	6.3	1	✓	
3. NO FLUID	6.8	3	✓	
NODE DEFINITION				
1. IMPLIED GENERATION	6.14	4	✓	
BOUNDARY CONDITION COPY		4	✓	
2. LINE GENERATION	6.11			
STRAIGHT LINE		4	✓	
FIRST GENERATED NODE GIVEN/NOT GIVEN		4	✓	
BOUND. COND. COPY/NOT COPY		4	✓	
3. CATENARY	6.11			
NO SAG		4	✓	
SAG HI-LO/LO-HI		5	✓	
LINE ON BOTTOM		4	✓	
4. CODES: INPUT CONSTRAINTS	6.14	all	✓	
GENERATED CONSTRAINTS		4, 5	✓	
ALTERED CONSTRAINTS	7.1.2, 7.1.3			
ELEMENT DEFINITIONS	6.6			
1. IMPLIED GENERATION		4	✓	
2. ELEMENT INCREMENT GIVEN		4	✓	
3. TENSIONS FROM CAT. GEN.	6.17	5	✓	

Must use parameters to specify zero properties.
Moving medium limits doesn't do it.

SEADYN BASELINE CAPABILITY (10/80)

PAGE 2

OF

CAPABILITY	MANUAL REFERENCE	TEST CASE REFERENCE	VERIFICATION STATUS	REMARKS
ELEMENT DEFINITIONS (CONT.)				
4. START-UP PROCEDURE	6.6	1	✓	Verified in other applications
COMPATIBLE STRETCHED		4	✓	
COMPATIBLE UNSTRETCHED			✓	
GUESSED UNSTRETCHED				
MATERIAL DESCRIPTIONS				
LINEAR MATERIALS	6.13	3	✓	Verified in other applications
NON-LINEAR TABLE		3	✓	
MEDIUM/WEIGHT/MASS/ADDED MASS		3	✓	
DAMPING PARAMETERS		3	✓	
LUMPED BODIES				
1. USER DEFINED DRAG	6.5	3	✓	Verified in other applications
2. SPHERICAL BUOY/ANCHORS	6.4, 6.5	3	✓	
WEIGHT/MASS/ADDED MASS	6.5	3	✓	
BUOY ON SURFACE DYNAMICS	7.1.9	5	✓	
HOLDING FACTOR	6.10	4	✓	Cylinder option does not work
ANCHOR FIXITY OPTIONS	6.10	4	✓	
SURFACE/BOTTOM LIMITS	6.10, 6.12	4, 5	✓	
3. CYLINDRICAL BUOY (SPECIFICS)	6.5	3	✓	
LINE ORIENTATION	6.5	5	✓	

SEADYN BASELINE CAPABILITY (10/80)

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OF

LOADING DEFINITIONS

CAPABILITY	MANUAL REFERENCE	TEST CASE REFERENCE	VERIFICATION STATUS	REMARKS
GRAVITY LOADS				
INCREMENTED/NOT INCREMENTED	7.1.15	2	✓	
POINT LOADS				
LOAD SET VARIATIONS	7.1.7	3	✓	
TIME VARIATION CONTROLS	7.1.8, 6.18	3	✓	TFNUSK
CURRENTS				
UNIFORM	7.1.1	3	✓	
USER OVERRIDE	7.1.1	3	✓	CURUSK
DRAG DEFINITIONS (DEFAULT)				
SPHERE	6.5	3	✓	
CYLINDER NORMAL		3	✓	
CYLINDER TANGENTIAL		3	✓	

SEADYN BASELINE CAPABILITY (10/80)					PAGE 4 OF
BOUNDARY CONDITIONS					
CAPABILITY	MANUAL REFERENCE	TEST CASE REFERENCE	VERIFICATION STATUS	REMARKS	
IMPOSED DISPLACEMENTS					
1. STATIC SOLUTION		2	✓		
2. MODE SOLUTION		3			
3. DYNAMIC MOVED BOUNDARY					
ACCELERATION	6.18, 7.19	4	✓		
VELOCITY		4	✓		
DISPLACEMENT		5	✓		
		5			
4. PAYOUT/REEL-IN	7.1.11	4	✓		
				TFNUSH	

SEADYN BASELINE CAPABILITY (10/80)

SOLUTION FORMS

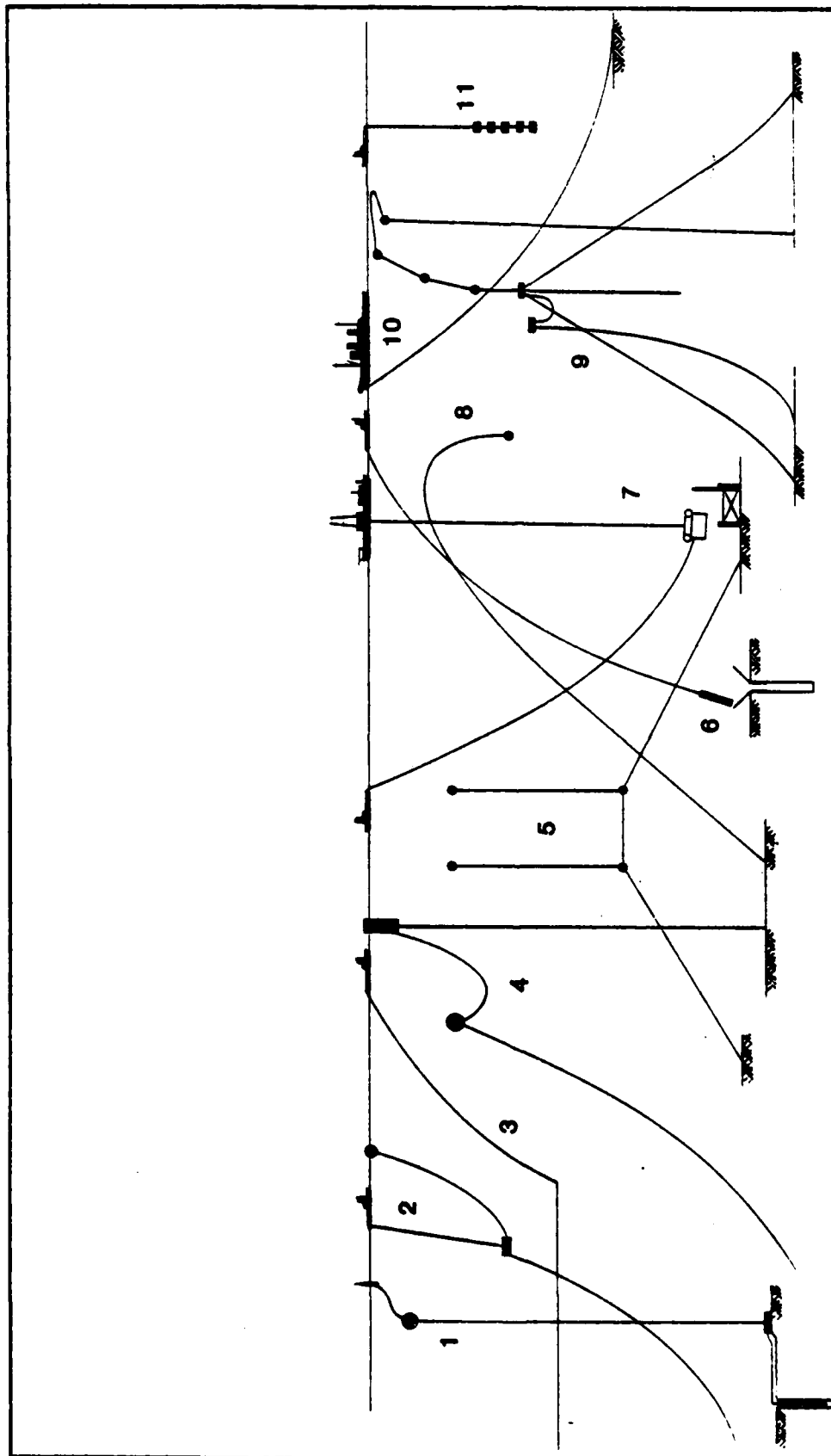
CAPABILITY	MANUAL REFERENCE	TEST CASE REFERENCE	VERIFICATION STATUS	REMARKS
SOLUTION FORMS				
1. DEAD				
MNR	7.1.14	1	✓	
RFB		1	✗	Not Accurate
VRR		2	✓	
2. LIVE				
MNR		3	✓	
VRR			✓	
3. DYFI				
MNR		1	✓	Poor Solution
RFB (2)		1	✓	
DI		1	✓	
TIME STEP SELECTION		1	✓	
INITIAL VELOCITY START	7.1.17		✓	
	7.1.5	3	✓	Must Start From Dead Solution

SEADYN BASELINE CAPABILITY (10/80)					PAGE 6 OF
OUTPUT CONTROLS					
CAPABILITY	MANUAL REFERENCE	TEST CASE REFERENCE	VERIFICATION STATUS	REMARKS	
INPUT DATA ECHO & INTERPR.	6.3	all	✓		
STEPS BETWEEN PRINTING	7.1.10		✓		
STATIC		4	✓		
TIME DOMAIN		4	✓		
STEP CONTROLLED		--	✓		
TIME CONTROLLED		--	✓		

SEADYN BASELINE CAPABILITY (10/80)

RESTART

CAPABILITY	MANUAL REFERENCE	TEST CASE REFERENCE	VERIFICATION STATUS	REMARKS
CONTINUE SOLUTION OPTION	6.2	1	✓	
START NEW SOLUTION OPTION		1	✓	
RESTART AT LAST OUTPUT RECORD		1	✓	



- | | |
|-------------------------------------|--------------------------------|
| 1 DEEP OCEAN SEISMIC SENSING SYSTEM | 7 MANFOLD STRUCTURE SUSPENSION |
| 2 LOWERING OF SUBSEA EQUIPMENT | 8 RECOVERY LINE FREEFALL |
| 3 DEEP TOWED GEOPHYSICAL ARRAY | 9 ACOUSTIC ARRAY |
| 4 POWER CABLE SUSPENSION | 10 CABLE SYSTEM DEPLOYMENT |
| 5 DEEP WATER RANGE | 11 SUSPENDED SOUND SOURCE |
| 6 INSTRUMENT PACKAGE REENTRY | |

WESTERN INSTRUMENT CORPORATION
1400 MAULBURY AVENUE • OLYMPIA, WASHINGTON 98513

DESIGNED BY: _____
CHECKED BY: _____
DATE: _____

CABLE SYSTEM ANALYSIS

Figure 1

SEADYN TEST CASE DEFINITIONS

1. SINGLE D.O.F. TEST CASE - SUDDEN RELEASE

Gravity Direction

MNR Solution
SLI Solution
RFB Solution

DEAD/DYN

DI Solution - DYN

Time Step Selection
New Solution Option

2. SINGLE D.O.F. TEST CASE - IMPOSED DISPLACEMENT

VR/SLI Solution
BR/RFG Solution

DEAD

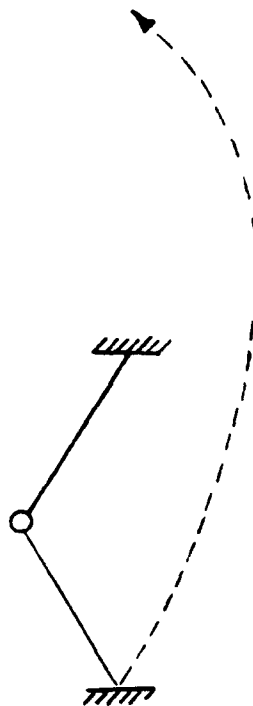
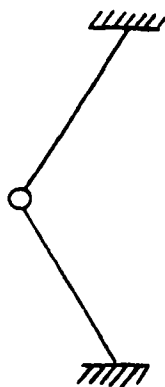
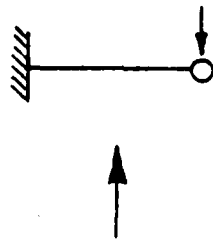


FIGURE 2

SEADYN TEST CASE DEFINITIONS

3. SINGLE D.O.F. TEST CASE - PENDULUM

- User Drag Override
- Default Drag Definitions
- Material Descriptions
 - Linear
 - Non-Linear Table
 - Medium/Weight/Mass/Added Mass
 - Damping Parameters
- Lumped Bodies
 - User Defined Drag
 - Cyl. & Sph. Buoys/Anchors
- Point Loads Variations
- Uniform Current
- Initial Velocity Start
- No Fluid



4. CABLE LAYING TEST CASE

- | | |
|---|--|
| <ul style="list-style-type: none"> Node Generation Implied Generation (elements) B.C. Copy Line Generation Catenary No-Sag Line On Bottom | <ul style="list-style-type: none"> All Start-Up Procedures Surface/Bottom Limits Anchor Holding Factor Anchor Fixity Options |
|---|--|

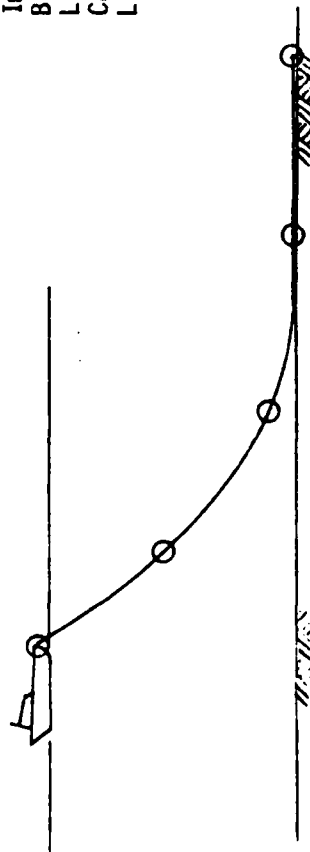


FIGURE 3

SEADYN TEST CASE DEFINITIONS

5. CATENARY TEST CASE

Catenary Generation - Sag
Constraint Codes From Catenary Generation
Tensions From Catenary Generation
Buoy on Surface Dynamics
Alter Constraint Codes

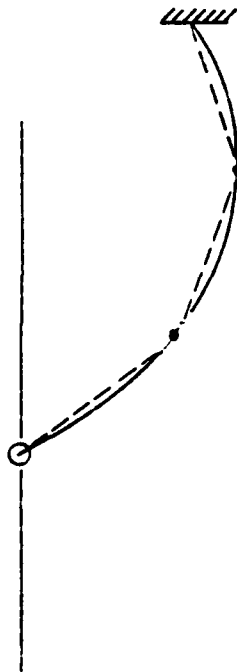


FIGURE 4

LINE DIRECT LIST OF INPUT DATA

```

1  SEADYN FREE FORM - TEST CASE NO. 1 - SUDEN RELEASES
2  PROB
3  3,2,-2,1,1
4  FLUI
5  1000..1
6  NODE
7  1,0,0..20..0.
8  2,0,-100..0..0..1,1,1
9  3,0,100..0..0..1,1,1
10 ELEM
11 1,2,1,1,1....20052.
12 2,3,1,1,1....20052.
13 ELOC
14 1,1,1
15 BODY
16 1..-5..10.
17 MATF
18 1..1..M9..1..606..1.
19 DEAD
20 SOLU,M12,-1
21 LOAD,1..7870..0..1,1
22 LVAR,1
23 OUTP,1
24 DYN
25 SOLU,M12,-1
26 TIME,.00044..011
27 SAVE,-25..011,1
28 NEW
29 RESTANT TO TEST NEXT SOLUTION OPTION
30 MEST
31 NEW,3,1,-25
32 DYN
33 SOLU,MFB
34 END

```

LINE DIRECT LIST OF INPUT DATA

1 SEADYN FREE FORM - TEST CASE NO. 2 - IMPOSED DISPLACEMENTS

2 PMUR

3 2.2e-2,1,1

4 PLU1

5 LG00,1

6 RODE

7 1e0,0,20,0.

8 2e0,-100,0,0,0,1,1,1

9 1e0,100,0,0,0,1,1,1

10 ULEM

11 1e2,1,0,1,0,0,0,20052.

12 2e3,1,0,1,0,0,0,20052.

13 BLOC

14 1,1,1

15 BGDY

16 1e-7,0,0,10.

17 MAT1

18 1,0,1,0,1,0,0,1.

19 DEAD

20 SOLU,VWR,M12,-1

21 STEP,10

22 MOVE,2,1,1,0,400.

23 END

1 STADYN FREE FORM - TEST CASE NO. 3 - PENDULUM S

1. STADYN FREE FORM - TEST CASE

1 STADYN FREE FORM - TEST CASE NO. 3 - PENDULUM S

```

2 PROM
3 2,1,-2,1,1
4 FLOW
5 250.1
6 MODE
7 1,1,1,1,1
8 2,0,0,-50.0.
9 ELEM
10 1,1,2,1,1,1,3,600.
11 BL0C
12 1,2,2
13 000Y
14 1,-34000.10.
15 MAYE
16 1,1,25,13.78,2,36000...15...45000...24
17 FLOW
18 1,1,1,8.4
19 IFUN
20 1,-1,1.
21 DEAD
22
23 SULU,VHR
24 LIVE
25 SULU,MHR
26 STEP,55
27 LOAD,1,-8000...1,2,2
28 LVAR,1
29 CURR,1
30 OUTP,500
31 DYN
32 CURR,1
33 TIME,.005,20.
34 LOAD,1,-8000...2,2
35 LVAR,1
36 OUTP,200
37 MODE
38 END

```

LINE DIRECT LIST OF INPUT DATA

LINE DIRECT LIST OF INPUT DATA

1 STEADY STATE FORM - TEST CASE NO. 3 - PENDULUM S

1. STADYN FREE FORM - TEST CASE NO. 3 - PENDULUM 3

पुनः ?

10107-0107

1774

1-0425

6. MUDDE

U.S. DEPARTMENT OF JUSTICE
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2 1020

1000000

— 64 —

SHARE

0690

500

45

61-1010

DEAD

205

3

3A174

SOL. O. AND
C. O. F. F.

0 2

10-11-61

CUAM, I

OUTP, 500

U DYN

21. CUMH, 1

TIME, .00

3.

and
T. H. V. A. J.

007,4100

ADDED MASS

1 SEADYN FREE FORM - TEST CASE NO. 3 - PENCULUM 6

```

2 PDM
3 2,1,-2,1,1
4 FLUF
5 250.1
6 AODE
7 1,.,.,.,1,1
8 2,0,-50.0,
9 CLEM
10 1,1,2,.,1,.,.,3600.
11 BLOC
12 1,2,2
13 BODY
14 1,-34000.,10.,2.
15 MATE
16 1,.,25,13.7M8,2.36000.,.15,.,45000.,.24
17 FLOW
18 1,1,0.4
19 TPUW
20 1,-1,1.
21 DEAD
22 SOLU,VNR
23 OUTP,500
24 LIVE
25 SOLU,VNR
26 STEP,5,5
27 LOAD,1,-8000.,.,2,2
28 LVAR,1
29 CURR,1
30 OUTP,500
31 DYN
32 CURR,1
33 TIME,.,005,20.
34 LOAD,1,-8000.,.,2,2
35 LVAR,1
36 OUTP,200

```

LINE DIRECT LIST OF INPUT DATA
 1 SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM & NO FLUID
 2 PROB
 3 2,1,-2,1,1
 4 FLUI
 5 250.,2
 6 NODF
 7 1.,.,.,.,1,1,1
 8 2.,0.,-50.,0.
 9 ELEM
 10 1,1,2,.,1,.,.,34600.
 11 BLOC
 12 1,2,2
 13 BODY
 14 1.,-34000.,10.
 15 MATE
 16 1,.,2,13,700,2,16000.,15,.,45000.,.,24
 17 FLOW
 18 1,1,8,4
 19 IFUN
 20 1,-1,1.
 21 LEAD
 22 SOLU,VAR
 23 OUTP,500
 24 LIVE
 25 SOLU,RNR
 26 STEP,2,5
 27 LOAD,1,-8000.,.,2,2
 28 LVAR,1
 29 CURR,1
 30 OUTP,500
 31 DYN
 32 CURR,1
 33 TIME,.,00,20.
 34 LOAD,1,-8000.,.,2,2
 35 LVAR,1
 36 OUTP,200
) END

LINE DIRECT LIST OF INPUT DATA

1 STEADY FLOW FLOW - FIRST CASE NO. 5 - CATERMANS
2 PROB
3 1.0, -2.0, 1.0
4 FLUX
5 0.0
6 NODE
7 1.0, 0.0, -100.0, 0.0, 1.0, 1.0
8 1.0, -150.0, 0.0, 0.0, 1.0, 1.0
9 LINE
10 2.0, 1.0, 1.0, 2.0, 2.0, 2.0
11 ULEM
12 1.0, 1.0, 1.0, 1.0, -1
13 1.0, 1.0, 1.0, 1.0, -1
14 HENS
15 1.0, 1.0, 1.0
16 MATE
17 1.0, 1.0, 1.0, 1.0, 1.0, 1.0
18 ULOC
19 1.0, 1.0, 1.0
20 TIME
21 1.0, 1.0, 1.0, 1.0, 1.0
22 HEN
23 1.0, 1.0, 1.0
24 LEAD
25 SOLUSWR
26 OUTP10
27 DYN
28 SOLUSWR
29 TIME, 0.1, 0.1
30 FREQ, 1
31 MOVE, 1.0, 1.0, 1.0, 1.0
32 OUTP, 50
33 END

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE

10/02/81

11.11.13.

PAGE 2

NEW PROBLEM DATA

NUMBER OF NODES -	3	NBASE -	260
NUMBER OF ELEMENTS -	2		
GRAVITY DIRECTION -	-2		
DYNAMIC OPTION FLAG -	1		
INPUT ECHO FLAG -	1		
DRAG MODEL OVERRIDE -	0		
SHIP LOAD FILE FLAG -	0		
GRAVITATIONAL ACCELERATION -			.321700E+02

SEADYN-- STADYN FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE

10/02/81

11.12.88.

PAGE 1

FLUID MEDIA DEFINITIONS

INTERFACIAL DEPTH KINEMATIC VISCOSITY SPECIFIC WEIGHT

1 .10000E+04

.17700E-04

.64000E+02

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE

10/02/01

11.32.33.

PAGE 4

NUGE DATA

NODE	CODE	X	Y	Z	CONSTRAINTS
1	0	0.	-20000E+02	0.	0
2	0	-10000E+03	0.	0.	1 1 1
3	0	10000E+03	0.	0.	1 1 1

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE

10/07/61

11-12-53

PAGE 5

ELEMENT INPUT DATA

EL	N1	N2	N3	MAT	KUMP	FLAG	TENSION	LENGTH	MEDIUM
1	2	1	0	1	0	0	.20052E+05	0.	1
2	3	1	0	1	0	0	.20052E+05	0.	1

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE

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BODY LOCATION DATA

BEGIN	END	INCM	BODY NO.	LIMIT SET
1	1	1	1	0

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE

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BODY DATA TABLE

BODY NO.	GRAC FN-NO.	BUOYANCY	DIAMETER	LENGTH	ADDED MASS CORR	WIND DRAG CORR	SUP CORR	ORIG	WIND DRAG CORR	WIND DRAG CORR
1	0	-50000E+01	10000E+02	0.	10000E+01	0.	0.	0.	0.	0.

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE

10/02/91

11.16.33.

PAGE

8

CABLE MATERIAL PROPERTY DATA

PROPERTY SET NO. = 1
DRAG COEF. NO. = 0
DIAMETER = .100000E+01
WEIGHT PER UNIT LENGTH = 0.
ADDED MASS COEFFICIENT = .100000E+01
REFERENCE MEDIUM CODE = 1
ULTIMATE TENSION = 0.
MASS PER UNIT LENGTH = .156250E+01
NO. OF POINTS ON TENSION/STRAIN CURVE = 0
EXPONENT FORM COEFFICIENTS = .10000E+07 .10000E+01

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE

10/02/81 11.32.33. PAGE 4

NODE-POINT DATA SUMMARY

NODE NO.	INITIAL COORDINATES			FIXITY CODES			LIMIT BODY			GRAVITY LOADS			VIRTUAL MASSES		
	X	Y	Z	X	Y	Z	SET	NO.	X	Y	Z	X	Y	Z	
1	0.	0.	0.	0	0	0	0	0	1	0.	0.	0.	0.	0.	0.
2	-.1000E+03	0.	0.	1	1	1	0	0	0	0.	0.	0.	0.	0.	0.
3	-.1000E+03	0.	0.	1	1	1	0	0	0	0.	0.	0.	0.	0.	0.

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE 10/17/01 11:52:55 PAGE 10

ELEMENT SUMMARY DATA

ELE CONNECTION DATA			MAT CUMP MED.		INITIAL		UNSTRETCHED		INITIAL		RESIDUAL	
NU.	N1	N2	N3	NO.	CODE	TENSION	LENGTH	LENGTH	LENGTH	MASS	MASS	MASS
1	2	1	1	1	0	.20052E+05	.99995E+02	.10170E+03	.10170E+03	.78121E+02	.78121E+02	.78121E+02
2	3	1	1	1	0	.20052E+05	.99995E+02	.10170E+03	.10170E+03	.78121E+02	.78121E+02	.78121E+02

SEADYN-- SEADYN FILE FORM - TEST CASE NO. 1 - SUDDEN RELEASE

10/02/61

11-12-13.

PAGE 11

ADDITIONAL ELEMENT DATA

ELEMENT	9805RE+00	SLOPES	TRANSIT TIME (APPROX)
1	00.000000	0.000000	0.000000
2	00.000000	0.000000	0.000000

HALF-BANDWIDTH - 4

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE

10/02/81 11.52.33. PAH 12

LOAD CASE PARAMETERS

SUBANALYSIS TYPE - DEAD

SOLUTION DATA RESET	DEF
POINT LOADS DATA	
LOAD SET	LOAD COMPONENTS
1 0.	0.
LOAD SET VARIATION CODES	
SET 1 - 1	
SET 2 - 0	
SET 3 - 0	
GRAVITY - 1	
OUTPUT DATA SELECTIONS	
STEP NUMBER INTERVAL - 1	
PARAMETER INTERVAL - 0.	
DEBUG OUTPUT FLAG - 0	

BEGIN END INC
1 1 1

SOLUTION OPTION SUMMARY

ANALYSIS TYPE = DEAD
SOLUTION FORM = MNK

NO. OF STATIC STEPS = 1
OUTPUT INTERVAL = 1
DEBUG PRINT CODE = 0
RESTART FILE FLAG = 0
UPDATE OPTION = 1
START UP OPTION = 0
NO. OF POINT LOADS = 1
FLOW FIELD NUMBER = 0

MODIFIED NEWTON-RAPHSON SOLUTION PARAMETERS

STEP SIZE CONTROL NO. = -1
ITERATION LIMIT = 200
NO. OF CONV. TRIALS = 3
MNK UPDATE INTERVAL = 205
NUMERICAL DAMPING = 0.
RESIDUAL ERROR TOLERANCE = .10000E-02
DEFLECT. ERROR TOLERANCE = .10000E-02
1-D SEARCH FACTOR = 0.
EXTRAPOLATION PARAMETER = .50000E+00

LOAD LOAD INCREMENT = 0 LOAD FACTOR 0.

NODE	X	Y	Z	VX	VY	VZ	ELT	EXTENSION
1	0.	0.	0.	0.	0.	0.	1	0.000000E+00
2	-0.100000E+03	0.	0.	0.	0.	0.	2	0.000000E+00
3	0.100000E+03	0.	0.	0.	0.	0.		0.000000E+00

NUMBER OF ITERATIONS 0

LOAD LOAD INCREMENT = 1 LOAD FACTOR 0.100000E+01

NODE	X	Y	Z	VX	VY	VZ	ELT	EXTENSION
1	0.	0.	0.	0.	0.	0.	1	0.000000E+00
2	-0.100000E+03	0.	0.	0.	0.	0.	2	0.000000E+00
3	0.100000E+03	0.	0.	0.	0.	0.		0.000000E+00

NUMBER OF ITERATIONS 1

SEADYN-- SEADYN FILE FIRM - TEST CASE NO. 1 - SUDDEN RELEASE

10/02/01 11.12.33. PAGE 15

L U A O C A S E P A R A M E T E R S

SUBANALYSIS TYPE = DYN

SOLUTION DATA RESET DEF

TIME STEP DATA

INITIAL TIME STEP = .44000E-03

MAXIMUM TIME = .11000E-01

BEGINNING TIME = 0.

UPDATE TIME = .44000E-03

ALPHA, BETA, GAMMA = 0.

RESTART OUTPUT CONTROLS

RESTART FILE FLAG = -25

SAVE TIME INTERVAL = .11000E-01

SUPPRESS RESTART OUTPUT

.8333E-03 .5000E+00

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE

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SOLUTION OPTION SUMMARY

ANALYSIS TYPE = DYN
SOLUTION FORM = DIM

DYN. INIT. COND. CODE = 0
OUTPUT INTERVAL = 0
DEBUG PRINT CODE = 0
RESTART FILE FLAG = -25
UPDATE OPTION = 1
START UP OPTION = 0
NO. OF POINT LOADS = 0
FLOW FIELD NUMBER = 0

DIRECT ITERATION METHOD DYNAMIC PARAMETERS
DEFLECT. ERROR TOLERANCE = .10000E-02

ELEMENT	EA	UNIT MASS	LENGTH	TIME STEP
1	.10000E+07	.153178E+01	.101980E+03	.123713E+00
2	.100000E+07	.153178E+01	.101980E+03	.123713E+00

TIME STEP DATA

INITIAL TIME STEP	=	.44000E-03
MAXIMUM TIME	=	.11000E-01
BEGINNING TIME	=	0.
UPDATE TIME	=	.44000E-03
ALPHA,BETA,GAMMA	=	0.
		.83333E-01
		.50000E+00

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - SUBOIN RELEASE

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OUTPUT TIME INTERVAL = .000000E+03
 RESTART TIME INTERVAL = .110000E+02

TIME = 0. DYNAMIC INCREMENT = 0

NODE	X	Y	VX	VY	VZ	ELI	TENSION
1	0.	.200000E+02	0.	0.	0.	1	.200519E+05
2	-.100000E+03	0.	0.	0.	0.	2	.200519E+05
3	.100000E+03	0.	0.	0.	0.		

NUMBER OF ITERATIONS 0

TIME = .000000E+03 DYNAMIC INCREMENT = 1

NODE	X	Y	VX	VY	VZ	ELI	TENSION
1	0.	.200000E+02	0.	-.724448E-03	0.	1	.200519E+05
2	-.100000E+03	0.	0.	0.	0.	2	.200519E+05
3	.100000E+03	0.	0.	0.	0.		

NUMBER OF ITERATIONS 3

TIME = .000000E+03 DYNAMIC INCREMENT = 2

NODE	X	Y	VX	VY	VZ	ELI	TENSION
1	0.	.200000E+02	0.	-.217334E-02	0.	1	.200519E+05
2	-.100000E+03	0.	0.	0.	0.	2	.200519E+05
3	.100000E+03	0.	0.	0.	0.		

NUMBER OF ITERATIONS 2

TIME = .132000E+02 DYNAMIC INCREMENT = 3

NODE	X	Y	VX	VY	VZ	ELI	TENSION
1	0.	.200000E+02	0.	-.362224E-02	0.	1	.200519E+05
2	-.100000E+03	0.	0.	0.	0.	2	.200519E+05
3	.100000E+03	0.	0.	0.	0.		

NUMBER OF ITERATIONS 2

TIME = .176000E+02 DYNAMIC INCREMENT = 4

NODE	X	Y	VX	VY	VZ	ELI	TENSION
1	0.	.200000E+02	0.	-.507114E-02	0.	1	.200519E+05
2	-.100000E+03	0.	0.	0.	0.	2	.200519E+05
3	.100000E+03	0.	0.	0.	0.		

NUMBER OF ITERATIONS 2

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE

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TIME = .22000E-02 DYNAMIC INCREMENT = 5
 NODE X Y Z
 1 0. .200000E+02 0.
 2 -.100000E+03 0.
 3 .100000E+03 0.
 NUMBER OF ITERATIONS 2

LLT
 1
 2
 TENSION
 .200519E+05
 .200519E+05

VY
 -.652003E-02
 0.
 0.

VX
 0.
 0.
 0.

TIME = .26400E-02 DYNAMIC INCREMENT = 6
 NODE X Y Z
 1 0. .200000E+02 0.
 2 -.100000E+03 0.
 3 .100000E+03 0.
 NUMBER OF ITERATIONS 2

LLT
 1
 2
 TENSION
 .200519E+05
 .200519E+05

VY
 -.796892E-02
 0.
 0.

VX
 0.
 0.
 0.

TIME = .30800E-02 DYNAMIC INCREMENT = 7
 NODE X Y Z
 1 0. .200000E+02 0.
 2 -.100000E+03 0.
 3 .100000E+03 0.
 NUMBER OF ITERATIONS 2

LLT
 1
 2
 TENSION
 .200519E+05
 .200519E+05

VY
 -.941781E-02
 0.
 0.

VX
 0.
 0.
 0.

TIME = .35200E-02 DYNAMIC INCREMENT = 8
 NODE X Y Z
 1 0. .199999E+02 0.
 2 -.100000E+03 0.
 3 .100000E+03 0.
 NUMBER OF ITERATIONS 2

LLT
 1
 2
 TENSION
 .200519E+05
 .200519E+05

VY
 -.108667E-01
 0.
 0.

VX
 0.
 0.
 0.

TIME = .39600E-02 DYNAMIC INCREMENT = 9
 NODE X Y Z
 1 0. .199999E+02 0.
 2 -.100000E+03 0.
 3 .100000E+03 0.
 NUMBER OF ITERATIONS 2

LLT
 1
 2
 TENSION
 .200519E+05
 .200519E+05

VY
 -.123156E-01
 0.
 0.

VX
 0.
 0.
 0.

SEADYN-- SEADYN FREE PUMP - TEST CASE NO. 1 - SUDDEN RELEASE

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TIME = .44000E-02 DYNAMIC INCREMENT = 10

NODE	X	Y	Z	VX	VY	VZ	ELI	TRANSIUM
1	0.	.199999E+02	0.	0.	-.137645E-01	0.	1	.200519E+05
2	-.100000E+03	0.	0.	0.	0.	0.	2	.200519E+05
3	.100000E+03	0.	0.	0.	0.	0.		

NUMBER OF ITERATIONS 2

TIME = .44000E-02 DYNAMIC INCREMENT = 11

NODE	X	Y	Z	VX	VY	VZ	ELI	TRANSIUM
1	0.	.199999E+02	0.	0.	-.152134E-01	0.	1	.200519E+05
2	-.100000E+03	0.	0.	0.	0.	0.	2	.200519E+05
3	.100000E+03	0.	0.	0.	0.	0.		

NUMBER OF ITERATIONS 2

TIME = .52000E-02 DYNAMIC INCREMENT = 12

NODE	X	Y	Z	VX	VY	VZ	ELI	TRANSIUM
1	0.	.199999E+02	0.	0.	-.166622E-01	0.	1	.200519E+05
2	-.100000E+03	0.	0.	0.	0.	0.	2	.200519E+05
3	.100000E+03	0.	0.	0.	0.	0.		

NUMBER OF ITERATIONS 2

TIME = .57000E-02 DYNAMIC INCREMENT = 13

NODE	X	Y	Z	VX	VY	VZ	ELI	TRANSIUM
1	0.	.199999E+02	0.	0.	-.181111E-01	0.	1	.200519E+05
2	-.100000E+03	0.	0.	0.	0.	0.	2	.200519E+05
3	.100000E+03	0.	0.	0.	0.	0.		

NUMBER OF ITERATIONS 2

TIME = .61600E-02 DYNAMIC INCREMENT = 14

NODE	X	Y	Z	VX	VY	VZ	ELI	TRANSIUM
1	0.	.199999E+02	0.	0.	-.195600E-01	0.	1	.200519E+05
2	-.100000E+03	0.	0.	0.	0.	0.	2	.200519E+05
3	.100000E+03	0.	0.	0.	0.	0.		

NUMBER OF ITERATIONS 2

SEAUTM-- SEAUTM FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE

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10/02/81

TIME = .00000E-02 DYNAMIC INCREMENT = 15

NODE	X	Y	Z	VX	VY	VZ	TENSION
1	0.	.199999E+02	0.	0.	-.210059E-01	0.	.200518E+03
2	-.100000E+03	0.	0.	0.	0.	0.	.200518E+03
3	.100000E+03	0.	0.	0.	0.	0.	.200518E+03

NUMBER OF ITERATIONS 2

TIME = .70400E-02 DYNAMIC INCREMENT = 16

NODE	X	Y	Z	VX	VY	VZ	TENSION
1	0.	.199999E+02	0.	0.	-.224577E-01	0.	.200518E+03
2	-.100000E+03	0.	0.	0.	0.	0.	.200518E+03
3	.100000E+03	0.	0.	0.	0.	0.	.200518E+03

NUMBER OF ITERATIONS 2

TIME = .74800E-02 DYNAMIC INCREMENT = 17

NODE	X	Y	Z	VX	VY	VZ	TENSION
1	0.	.199999E+02	0.	0.	-.239066E-01	0.	.200518E+03
2	-.100000E+03	0.	0.	0.	0.	0.	.200518E+03
3	.100000E+03	0.	0.	0.	0.	0.	.200518E+03

NUMBER OF ITERATIONS 2

TIME = .79200E-02 DYNAMIC INCREMENT = 18

NODE	X	Y	Z	VX	VY	VZ	TENSION
1	0.	.199999E+02	0.	0.	-.253555E-01	0.	.200518E+03
2	-.100000E+03	0.	0.	0.	0.	0.	.200518E+03
3	.100000E+03	0.	0.	0.	0.	0.	.200518E+03

NUMBER OF ITERATIONS 2

TIME = .83600E-02 DYNAMIC INCREMENT = 19

NODE	X	Y	Z	VX	VY	VZ	TENSION
1	0.	.199999E+02	0.	0.	-.268043E-01	0.	.200518E+03
2	-.100000E+03	0.	0.	0.	0.	0.	.200518E+03
3	.100000E+03	0.	0.	0.	0.	0.	.200518E+03

NUMBER OF ITERATIONS 2

STEADY-STATE FLOW - TEST CASE NO. 1 - SUDAN RELEASE

11.12.55. PAGE 1

10/02/01

TIME = .00000E+00 DYNAMIC INCREMENT = 20

NODE	X	Y	Z
1	0.	.199998E+02	0.
2	-.100000E+03	0.	0.
3	.100000E+03	0.	0.

AA	10-12E-01	0.	0.	0.
1	0.	0.	0.	0.
2	0.	0.	0.	0.

FUNCTION
1 1
2 2
3 3

NUMBER OF ITERATIONS 2

TIME = .42400E-02 DYNAMIC INCREMENT = 21

NODE	X	Y	Z
1	0.	.199998E+02	0.
2	-.100000E+03	0.	0.
3	.100000E+03	0.	0.

AA	10-12E-01	0.	0.	0.
1	0.	0.	0.	0.
2	0.	0.	0.	0.

FUNCTION
1 1
2 2
3 3

NUMBER OF ITERATIONS 2

TIME = .46800E-02 DYNAMIC INCREMENT = 22

NODE	X	Y	Z
1	0.	.199998E+02	0.
2	-.100000E+03	0.	0.
3	.100000E+03	0.	0.

AA	10-12E-01	0.	0.	0.
1	0.	0.	0.	0.
2	0.	0.	0.	0.

FUNCTION
1 1
2 2
3 3

NUMBER OF ITERATIONS 2

TIME = .10120E-01 DYNAMIC INCREMENT = 23

NODE	X	Y	Z
1	0.	.199998E+02	0.
2	-.100000E+03	0.	0.
3	.100000E+03	0.	0.

AA	10-12E-01	0.	0.	0.
1	0.	0.	0.	0.
2	0.	0.	0.	0.

FUNCTION
1 1
2 2
3 3

NUMBER OF ITERATIONS 2

TIME = .10260E-01 DYNAMIC INCREMENT = 24

NODE	X	Y	Z
1	0.	.199998E+02	0.
2	-.100000E+03	0.	0.
3	.100000E+03	0.	0.

AA	10-12E-01	0.	0.	0.
1	0.	0.	0.	0.
2	0.	0.	0.	0.

FUNCTION
1 1
2 2
3 3

NUMBER OF ITERATIONS 2

STAVIN-- STAVIN FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE
NEXT TEST NEXT SOLUTION OPTION

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SEADYN--RESTART TO EAST NEXT SOLUTION OPTION
: : : : : 10/02/81 11.12.33. PAGE 24

RESTART OPTION NEW

RESTART FILE NO. = 3
RESTART RECORD NO. = 1
RESTART FILE FLAG = -25
CHECK WORD FLAG = 0
OUTPUT INTERVAL FLAG = 0
DEBUG OUTPUT FLAG = 0

RESTART TAPE LABEL

SEADYN FREE FORM - TEST CASE NO. 1 - SUDDEN RELEASE

SEADYN--ALSTART TO TEST NEXT SOLUTION OPTION
----- 10/02/81 11-32-33 PAGE 29

L U A D C A S E P A R A M E T E R S

SUBANALYSIS TYPE = DYN

SOLUTION DATA RESET KFB

SEADYN--RESTART TO TEST NEXT SOLUTION OPTION
 : : : : : 10/02/81 11.32.33. PAGE 26

SOLUTION OPTION SUMMARY

ANALYSIS TYPE = DYN
 SOLUTION FORM = RFR

DYN. INIT. COND. CODE = 0
 OUTPUT INTERVAL = 0
 DEBUG PRINT CODE = 0
 RESTART FILE FLAG = 0
 UPDATE OPTION = 1
 START UP OPTION = 0
 NO. OF POINT LOADS = 0
 FLOW FIELD NUMBER = 0

ELEMENT	EA	UNIT MASS	LENGTH	TIME STEP
1	.100000E+07	.153178E+01	.101980E+03	.123713E+00
2	.100000E+07	.153178E+01	.101980E+03	.123713E+00

TIME STEP DATA

INITIAL TIME STEP	=	.44000E-03
MAXIMUM TIME	=	.11000E-01
BEGINNING TIME	=	0.
UPDATE TIME	=	.44000E-03
ALPHA, BETA, GAMMA	=	0.
		.83333E-01
		.50000E+00

START-RESTART TO NEXT SOLUTION OPTION
 10/02/81 11.32.33. PAGE 2/

OUTPUT TIME INTERVAL = .440000E-03

TIME = 0. DYNAMIC INCREMENT = 0

MODE	X	Y	VX	VY	VZ	FUNCTION
1	0.	.200000E+02	0.	0.	0.	.200519E+05
2	-.100000E+03	0.	0.	0.	0.	.200519E+05
3	.100000E+03	0.	0.	0.	0.	.200519E+05

TIME = .440000E-03 DYNAMIC INCREMENT = 1

MODE	X	Y	VX	VY	VZ	FUNCTION
1	0.	.200000E+02	0.	-.72444E-03	0.	.200519E+05
2	-.100000E+03	0.	0.	0.	0.	.200519E+05
3	.100000E+03	0.	0.	0.	0.	.200519E+05

TIME = .880000E-03 DYNAMIC INCREMENT = 2

MODE	X	Y	VX	VY	VZ	FUNCTION
1	0.	.200000E+02	0.	-.21933E-02	0.	.200519E+05
2	-.100000E+03	0.	0.	0.	0.	.200519E+05
3	.100000E+03	0.	0.	0.	0.	.200519E+05

TIME = .132000E-02 DYNAMIC INCREMENT = 3

MODE	X	Y	VX	VY	VZ	FUNCTION
1	0.	.200000E+02	0.	-.37047E-02	0.	.200519E+05
2	-.100000E+03	0.	0.	0.	0.	.200519E+05
3	.100000E+03	0.	0.	0.	0.	.200519E+05

TIME = .176000E-02 DYNAMIC INCREMENT = 4

MODE	X	Y	VX	VY	VZ	FUNCTION
1	0.	.200000E+02	0.	-.57616E-02	0.	.200519E+05
2	-.100000E+03	0.	0.	0.	0.	.200519E+05
3	.100000E+03	0.	0.	0.	0.	.200519E+05

TIME = .220000E-02 DYNAMIC INCREMENT = 5

MODE	X	Y	VX	VY	VZ	FUNCTION
1	0.	.200000E+02	0.	-.68653E-02	0.	.200519E+05
2	-.100000E+03	0.	0.	0.	0.	.200519E+05
3	.100000E+03	0.	0.	0.	0.	.200519E+05

HEADY--WE START TU 11.12.11. SOLUTION OPTION
 : : : : : 10/02/81 11.12.11. PAGE 28

TIME = .26400E-02 DYNAMIC INCREMENT = 6
 MODE X Y
 1 0. .200000E+02 0.
 2 -.100000E+03 0.
 3 .100000E+03 0.
 TRANSITION
 1 1
 2 2
 .200519E+05
 .200519E+05

TIME = .30800E-02 DYNAMIC INCREMENT = 7
 MODE X Y
 1 0. .200000E+02 0.
 2 -.100000E+03 0.
 3 .100000E+03 0.
 TRANSITION
 1 1
 2 2
 .200519E+05
 .200519E+05

TIME = .35200E-02 DYNAMIC INCREMENT = 8
 MODE X Y
 1 0. .199999E+02 0.
 2 -.100000E+03 0.
 3 .100000E+03 0.
 TRANSITION
 1 1
 2 2
 .200519E+05
 .200519E+05

TIME = .39600E-02 DYNAMIC INCREMENT = 9
 MODE X Y
 1 0. .199999E+02 0.
 2 -.100000E+03 0.
 3 .100000E+03 0.
 TRANSITION
 1 1
 2 2
 .200519E+05
 .200519E+05

TIME = .44000E-02 DYNAMIC INCREMENT = 10
 MODE X Y
 1 0. .199999E+02 0.
 2 -.100000E+03 0.
 3 .100000E+03 0.
 TRANSITION
 1 1
 2 2
 .200519E+05
 .200519E+05

TIME = .48400E-02 DYNAMIC INCREMENT = 11
 MODE X Y
 1 0. .199999E+02 0.
 2 -.100000E+03 0.
 3 .100000E+03 0.
 TRANSITION
 1 1
 2 2
 .200519E+05
 .200519E+05

SLAVEN-ME START TO 10/02/81 11.12.13. PAGE 29 SOLUTION OPTION

TIME	-52800E-02	DYNAMIC INCREMENT	12	Y	VX	VY	VT	TRANSLATION
NODE	X	Y	Z					
1	0.	.199999E+02	0.	0.	0.	0.	0.	0.
2	-.100000E+03	0.	0.	0.	0.	0.	0.	0.
3	.100000E+03	0.	0.	0.	0.	0.	0.	0.

TIME	-57200E-02	DYNAMIC INCREMENT	13	Y	VX	VY	TRANSLATION
NODE	X	Y	Z				
1	0.	.199999E+02	0.	0.	0.	0.	0.
2	-.100000E+03	0.	0.	0.	0.	0.	0.
3	.100000E+03	0.	0.	0.	0.	0.	0.

TIME	-61600E-02	DYNAMIC INCREMENT	14	Y	VX	VY	TRANSLATION
NODE	X	Y	Z				
1	0.	.199999E+02	0.	0.	0.	0.	0.
2	-.100000E+03	0.	0.	0.	0.	0.	0.
3	.100000E+03	0.	0.	0.	0.	0.	0.

TIME	-66000E-02	DYNAMIC INCREMENT	15	Y	VX	VY	TRANSLATION
NODE	X	Y	Z				
1	0.	.199999E+02	0.	0.	0.	0.	0.
2	-.100000E+03	0.	0.	0.	0.	0.	0.
3	.100000E+03	0.	0.	0.	0.	0.	0.

TIME	-70400E-02	DYNAMIC INCREMENT	16	Y	VX	VY	TRANSLATION
NODE	X	Y	Z				
1	0.	.199999E+02	0.	0.	0.	0.	0.
2	-.100000E+03	0.	0.	0.	0.	0.	0.
3	.100000E+03	0.	0.	0.	0.	0.	0.

TIME	-74800E-02	DYNAMIC INCREMENT	17	Y	VX	VY	TRANSLATION
NODE	X	Y	Z				
1	0.	.199999E+02	0.	0.	0.	0.	0.
2	-.100000E+03	0.	0.	0.	0.	0.	0.
3	.100000E+03	0.	0.	0.	0.	0.	0.

SEADYN--RESTART TO TEST NEXT SOLUTION OPTION
 10/02/81 11.12.11. PAGE 11

TIME = .10560E-01 DYNAMIC INCREMENT = 24

NODE	X	Y	Z	VX	VY	VZ	ELI	ELMSION
1	0.	.199997E+02	0.	0.	-.483972E-01	0.	1	.200515E+05
2	-.100000E+03	0.	0.	0.	0.	0.	2	.200515E+05
3	.100000E+03	0.	0.	0.	0.	0.		

TIME = .11000E-01 DYNAMIC INCREMENT = 25

NODE	X	Y	Z	VX	VY	VZ	ELI	ELMSION
1	0.	.199997E+02	0.	0.	-.512992E-01	0.	1	.200515E+05
2	-.100000E+03	0.	0.	0.	0.	0.	2	.200515E+05
3	.100000E+03	0.	0.	0.	0.	0.		

TIME = .11000E-01 DYNAMIC INCREMENT = 26

NODE	X	Y	Z	VX	VY	VZ	ELI	ELMSION
1	0.	.199997E+02	0.	0.	-.520731E-01	0.	1	.200515E+05
2	-.100000E+03	0.	0.	0.	0.	0.	2	.200515E+05
3	.100000E+03	0.	0.	0.	0.	0.		

SEADYN-- SEADYN FREE FUNN - TEST CASE NO. 2 - IMPOSED DISPLACEMENT

10/02/91

11.11.90.

2

NEW PROBLEM DATA

NUMBER OF NODES = 3
NUMBER OF ELEMENTS = 2
GRAVITY DIRECTION = -2
DYNAMIC OPTION FLAG = 1
INPUT ECHO FLAG = 1
DRAG MODEL OVERRIDE = 0
SHIP LOAD FILE FLAG = 0

260

PHASE =

GRAVITATIONAL ACCELERATION = -321700E+02

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 2 - IMPOSED DISPLACEMENT

10/02/01

11-31-16.

PAGE

1

FLUID MEDIA DEFINITIONS

INTERFACE DEPTH KINEMATIC VISCOSITY SPECIFIC WEIGHT

1 .10000E+04 .17700E-04 .66000E+02

STEADY-- STEADY FREE FORM - TEST CASE NO. 2 - IMPOSED DISPLACEMENT

10/02/81

11.11.80.

PAGE 4

NODE DATA

NODE	CODE	X	Y	Z	CONSTRAINTS
1	0	0.	0.	0.	0
2	0	-0.10000E+03	0.	0.	1 1 1
3	0	-0.10000E+03	0.	0.	1 1 1

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 2 - IMPULSED DISPLACEMENT

10/02/81

11.11.86.

PAGE

5

ELEMENT INPUT DATA

EL	N1	N2	N3	MAT	KUMP	FLAG	TENSION	LENGTH	MEDIUM
1	2	1	0	1	0	0	.20052E+05	0.	1
2	1	1	0	1	0	0	.20052E+05	0.	1

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 2 - IMPOSED DISPLACEMENT

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BODY LOCATION DATA

BEGIN	END	INCH	BODY NO.	LIMIT SET
1	1	1	1	0

SEADYN-- SEADYN FREE FUMP - TEST CASE NO. 2 - IMPUSED DISPLACEMENT

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BUOY DATA TABLE

BUOY NO.	DRAG FM.NO.	BOUYANCY	DIAMETER	LENGTH	ADDED MASS COEF	STIFF DRAG COEF	DRAG COEF	NUM OF INITIAL
1	0	-1.78700E+05	1.0000E+02	0.	1.0000E+01	0.	0.	1

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 2 - IMPUSED DISPLACEMENT

CABLE MATERIAL PROPERTY DATA

PROPERTY SET NO. = 1
DRAG COEF. NO. = 0
DIAMETER = .100000E+01
WEIGHT PER UNIT LENGTH = 0.
ADDED MASS COEFFICIENT = .100000E+01
REFERENCE MEDIUM CODE = 1
ULTIMATE TENSION = 0.
MASS PER UNIT LENGTH = .156250E+01
NO. OF POINTS ON TENSION/STRAIN CURVE = 0
EXPONENT FORM COEFFICIENTS .10000E+07 .10000E+01

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 2 - IMPULSED DISPLACEMENT

10/02/01 11.11.10. PAGE 9

NODE POINT DATA SUMMARY

NODE NO.	INITIAL COORDINATES			FIXITY CODES			LIMIT BODY		GRAVITY LOADS		VIRTUAL MASS/S		
	X	Y	Z	X	Y	Z	SET	NO.	X	Y	X	Y	Z
1	0.	0.	0.	0	0	0	0	1 0.	-7870E+04	0.	-2640E+04	-2640E+04	-2640E+04
2	-1.1000E+03	0.	0.	1	1	1	0	0 0.	0.	0.	-1562E+03	-1562E+03	-1562E+03
3	-1.0000E+03	0.	0.	1	1	1	0	0 0.	0.	0.	-1562E+03	-1562E+03	-1562E+03

ELEMENT SUPPLEMENTARY DATA

EIT CONNECTION DATA			MAT CUMP MED.		INITIAL TENSION	UNSTRETCHED LENGTH	INITIAL LENGTH	RESIDUAL PASS
NO.	N1	N2	NO.	CODE				
1	2	1	1	0	.20052E+05	.99995E+02	.10198E+03	.78121E+02
2	3	1	1	0	.20052E+05	.99995E+02	.10198E+03	.78121E+02

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 2 - IMPOSED DISPLACEMENT

ADDITIONAL ELEMENT DATA

ELEMENT	SLOPES	TRANSIT TIME (APPROX)
1	.98058E+00	.12499E+00
2	-.98058E+00	.12499E+00

HALF-BANDWIDTH - 9

SEADYN-- SEADYN PREL FORM - TEST CASE NO. 2 - IMPOSED DISPLACEMENT

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LOAD CASE PARAMETERS

SUBANALYSIS TYPE = DEAD

SOLUTION DATA RESET VNR

STATIC STEP DATA

NUMBER OF STEPS = 10

START UP OPTION = 0

HEADING INCREMENT = 0.

TOTAL HEADING CHANGE = 0.

MODE COMPONENT MOVEMENT DATA

MODE	TYPE	VARY CODE	AMPLITUDE	TYPE	VARY CODE	AMPLITUDE	TYPE	VARY CODE	AMPLITUDE
2	1	1	.40000E+03	0	0	0.	0	0	0.

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 2 - IMPUSED DISPLACEMENT

10/02/81

11.11.80. PAUL

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SOLUTION OPTION SUMMARY

ANALYSIS TYPE = DEAD
SOLUTION FORM = VRH

NO. OF STATIC STEPS = 10
OUTPUT INTERVAL = 0
DEBUG PRINT CODE = 0
RESTART FILE FLAG = 0
UPDATE OPTION = 1
START UP OPTION = 0
NO. OF POINT LOADS = 0
FLOW FIELD NUMBER = 0
NUMBER OF DISP. INPUT = 1

VISCOUS RELAXATION SOLUTION PARAMETERS

INTEGRATION PARAMETER = .10000E+01
INITIAL STEP SIZE = .10000E+01
INITIAL DAMPING = .10000E-02
ITERATION LIMIT = 200

STEADY-- STEADY FREE FORM - TEST CASE NO. 2 - IMPOSED DISPLACEMENT

10/02/81 11. 11. 36. PAUL IN

DEAD LOAD INCREMENT - 0 LOAD FACTOR 0.

NODE	X	Y	Z	VX	VY	VZ	ELL	TENSION
1	0.	-.200000E+02	0.	0.	0.	0.	1	-.200520E+05
2	-.100000E+03	0.	0.	0.	0.	0.	2	-.200520E+05
3	-.100000E+03	0.	0.	0.	0.	0.		

DEAD LOAD INCREMENT - 10 LOAD FACTOR -10000E+01

NODE	X	Y	Z	VX	VY	VZ	ELL	TENSION
1	-.200000E+03	-.200043E+02	0.	0.	0.	0.	1	-.200605E+05
2	-.300000E+03	0.	0.	0.	0.	0.	2	-.200605E+05
3	-.100000E+03	0.	0.	0.	0.	0.		

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

FILE NAME: 3.F.F.

10/02/01

11-12-07

PAGE

2

NEW PROBLEM DATA

NUMBER OF NODES	=	2	
NUMBER OF ELEMENTS	=	1	NBASE = 163
GRAVITY DIRECTION	=	-2	
DYNAMIC OPTION FLAG	=	1	
INPUT ECHO FLAG	=	1	
DAMP MODEL OVERWIDE	=	0	
SHIP LOAD FILE FLAG	=	0	
GRAVITATIONAL ACCELERATION	=	.321700E+02	

SEADYN-- SEADYN FUEL PUMP - TEST CASE NH. 3 - PENDULUM

10/02/81

11.32.47. PAGE

1

FLUID MEDIA DEFINITIONS

INTERFACE DEPTH KINEMATIC VISCOSITY SPECIFIC WEIGHT

1 .25000E+03 .17700E-04 .64000E+02

SEADYN-- SEADYN FREE PUNCH - TEST CASE NO. 3 - PENDULUM

10/02/71

11.12.47. PAGE

NODE DATA

NODE	CODE	X	Y	Z	CONSTRAINTS
1	0	0.	0.	0.	1 1 1
2	0	0.	-.50000E+02	0.	0 0 0

SEADYN-- SEADYN FILE FORM - TEST CASE NO. 3 - PENDULUM

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ELEMENT INPUT DATA

EL	N1	N2	N3	MAT	COMP	FLAG	TENSION	LENGTH	MEDIUM
1	1	2	0	1	0	0	.34600E+05	0.	1

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

10/02/81

11.12.87.

PAGE

6

BODY LOCATION DATA

BEGIN	END	INCR	BODY NO.	LIMIT SET
2	2	1	1	0

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

10/02/81

11.32.47.

PAGE

1

BODY DATA TABLE

BODY NO.	DRAG FN-NO.	BUOYANCY	DIAMETER	LENGTH	ADDED MASS CUEF	WIND DRAG CUEF	SUN CUM DRAG	RUN UP INERTIA	MRU
1	0	-0.34000E+05	.10000E+02	0.	.10000E+01	0.	0.	0.	1

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

10/02/01

11-12-97

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CABLE MATERIAL PROPERTY DATA

PROPERTY SET NO. = 1
ORAL COEF. NO. = 0
DIAMETER = .250000E+00
WEIGHT PER UNIT LENGTH = .137000E+02
ADDED MASS COEFFICIENT = .100000E+01
REFERENCE MEDIUM CODE = 1
ULTIMATE TENSION = 0.
MASS PER UNIT LENGTH = .523519E+00
NO. OF POINTS ON TENSION/STRAIN CURVE = 2

	TENSION	STRAIN	EA
1	.360000E+05	.150000E+00	.240000E+06
2	.450000E+05	.240000E+00	.100000E+06

SEADYN-- SEADYN FUEL FORM - 11ST CASE NO. 3 - PENDULUM

10/02/61

11.12.57.

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4

FLOW FIELD DATA SETS

SET CODE	PARAMETERS				
1	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.

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TIME FUNCTION DEFINITIONS

FN. NUMBER	1	CUDE	-1	PARAMETERS
				.10000E+01
				0.
				0.
				0.

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SEADYN--- SEADYN SHEE FORM - TEST CASE NO. 3 - PENDULUM

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NODE POINT DATA SUMMARY

NODE NO.	INITIAL COORDINATES			FIXITY CODES			LIMIT SET			BODY NO.	GRAVITY LOADS			VIRTUAL MASSES		
	X	Y	Z	X	Y	Z	X	Y	Z		X	Y	Z	X	Y	Z
1 0.	0.	0.	0.	1	1	1	0	0	0	0	-1.017E+03	0.	0.	-1.368E+02	-1.368E+02	-1.368E+02
2 0.	-1.5000E+02	0.	0.	0	0	0	0	0	0	1	-1.3430E+05	0.	0.	-1.154E+04	-1.154E+04	-1.154E+04

STEADY-- STEADY FREE FORM - TEST CASE NO. 3 - PENDULUM

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ELEMENT SUMMARY DATA

EIT CONNECTION DATA				MAT CUMP MED.		INITIAL TENSION		UNSTRETCHED LENGTH		INITIAL LENGTH		RESIDUAL MASS	
NO.	N1	N2	N3	NO.	CODE	CODE	CODE	CODE	CODE	CODE	CODE	CODE	CODE
1	1	2	1	1	0	1	.34600E+05	.44051E+02	.50000E+02	.21509E+01			

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SEADYN-- SEADYN FILE FORM - TEST CASE NO. 3 - PENDULUM

ADDITIONAL ELEMENT DATA

ELEMENT	0.	SLOPES	0.	TRANSIT TIME (APPROX)
1	0.	-.10000E+01	0.	.05060E-01

HALF-BANDWIDTH = 6

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WESTERN INSTRUMENTS CORP OXNARD CA
TEST CASES FOR SEADYN VERIFICATION.(U)
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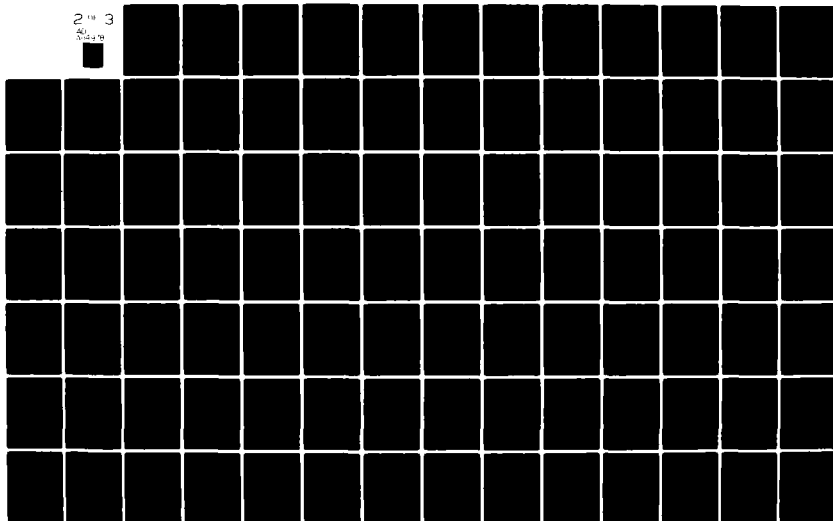
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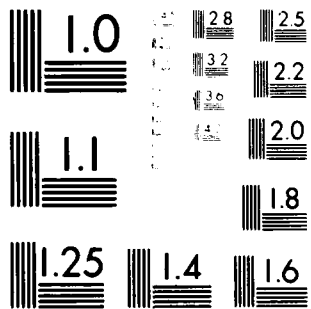
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MICROCOPY RESOLUTION TEST CHART
 NATIONAL BUREAU OF STANDARDS-1963-A

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SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

LOAD CASE PARAMETERS

SUBANALYSIS TYPE = DEAD

SOLUTION DATA RESET VRR
OUTPUT DATA SELECTIONS
STEP NUMBER INTERVAL = 500
PARAMETER INTERVAL = 0.
DEBUG OUTPUT FLAG = 0

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

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SOLUTION OPTION SUMMARY

ANALYSIS TYPE - DEAD
SOLUTION FORM - VRH

NU. OF STATIC STEPS - 1
OUTPUT INTERVAL - 500
DEBUG PRINT CODE - 0
RESTART FILE FLAG - 0
UPDATE OPTION - 1
START UP OPTION - 0
NO. OF POINT LOADS - 0
FLOW FIELD NUMBER - 0

VISCOUS RELAXATION SOLUTION PARAMETERS

INTEGRATION PARAMETER - .10000E+01
INITIAL STEP SIZE - .10000E+01
INITIAL DAMPING - .10000E-02
ITERATION LIMIT - 200

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

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DEAD LOAD INCREMENT = 0 LOAD FACTOR 0.

NODE	X	Y	Z	VX	VY	VZ	ELF	TEMP
1	0.	0.	0.	0.	0.	0.	1	.346000E+05
2	0.	-.500000E+02	0.	0.	0.	0.		

SLGW CONVERGENCE ON STEP 4
 LAST FOUR VELOCITY NORMS .203619E+01 .160132E+01 .489673E+00 .136027E-01
 LAST RESIDUAL NORMS .596342E+04 .158761E+04 .932798E+02

NEW STEP SIZE = .20000E+01

DEAD LOAD INCREMENT = 1 LOAD FACTOR .10000E+01

NODE	X	Y	Z	VX	VY	VZ	ELF	TEMP
1	0.	0.	0.	0.	0.	0.	1	.343017E+05
2	0.	-.449517E+02	0.	0.	0.	0.		

SEADYN-- SEADYN FREE FLOW - TEST CASE NO. 3 - PENDULUM

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LOAD CASE PARAMETERS

SUBANALYSIS TYPE - LIVE

SOLUTION DATA NSEI MM

STATIC STEP DATA

NUMBER OF STEPS - 5

START UP OPTION - 5

HEADING INCREMENT - 0.

TOTAL HEADING CHANGE - 0.

POINT LOADS DATA

LOAD SET LOAD COMPONENTS

1 --00000E+04 0. 0.

LOAD SET VARIATION COOLS

SET 1 - 1

SET 2 - 0

SET 3 - 0

GRAVITY - 0

CURRENT FIELD DATA

FLOW FIELD NUMBER - 1

FLOW FIELD MULTIPLIER - .10000E+01

FLOW VARIATION CODE - 0

OUTPUT DATA SELECTIONS

STEP NUMBER INTERVAL - 500

PARAMETER INTERVAL - 0.

DEBUG OUTPUT FLAG - 0

BEGIN END INC
2 2 1

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

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SOLUTION OPTION SUMMARY

ANALYSIS TYPE - LIVE
SOLUTION FORM - MNR

NO. OF STATIC STEPS - 5
OUTPUT INTERVAL - 500
DEBUG PRINT CODE - 0
RESTART FILE FLAG - 0
UPDATE OPTION - 1
START UP OPTION - 5
NO. OF POINT LOADS - 1
FLOW FIELD NUMBER - 1

MODIFIED NEWTON-RAPHSON SOLUTION PARAMETERS

STEP SIZE CONTROL NO. - 2
ITERATION LIMIT - 200
NO. OF CONV. TRIALS - 3
MNR UPDATE INTERVAL - 205
NUMERICAL DAMPING - 0.
RESIDUAL ERROR TOLERANCE - .10000E-02
DEFLECT. ERROR TOLERANCE - .10000E-02
1-D SEARCH FACTOR - 0.
EXTRAPOLATION PARAMETER - .50000E+00

STEADY-- STEADY FREE TURN - TEST CASE NO. 1 - PENDULUM

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STEADY STATE INCREMENT = 0 LOAD FACTUM 0.

MODE	X	Y	Z	VX	VY	VZ	ELT	ELMSION
1	0.	0.	0.	0.	0.	0.	1	.14301E+03
2	0.	-.449517E+02	0.	0.	0.	0.		

NUMBER OF ITERATIONS 0

STEADY STATE INCREMENT = 9 LOAD FACTUM .10000E+01

MODE	X	Y	Z	VX	VY	VZ	ELT	ELMSION
1	0.	0.	0.	0.	0.	0.	1	.150806E+03
2	-.102974E+02	-.440075E+02	0.	0.	0.	0.		

NUMBER OF ITERATIONS 3

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SEADYN-- SEADYN FILE FORM - TEST CASE NO. 1 - PERNUMULUM

LOAD CASE PARAMETERS

SUBANALYSIS TYPE = DYN

CURRENT FIELD DATA
FLOW FIELD NUMBER = 1
FLOW FIELD MULTIPLIER = .10000E+01
FLOW VARIATION CODE = 0

TIME STEP DATA
INITIAL TIME STEP = .50000E-02
MINIMUM TIME = .20000E+02
BEGINNING TIME = 0.
UPDATE TIME = .50000E-02
ALPHA=BETA.GAMMA = 0.

POINT LOADS DATA
LOAD SET = LOAD COMPONENTS
1 .40000E+04 0.
2 .20000E+01
3 .50000E+00
BEGIN END INC
2 2 1

LOAD SET VARIATION CODES
SET 1 = 1
SET 2 = 0
SET 3 = 0
GRAVITY = 0

OUTPUT DATA SELECTIONS
STEP NUMBER INTERVAL = 200
PARAMETER INTERVAL = 0.
DEBUG OUTPUT FLAG = 0

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - PENDULUM

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SOLUTION OPTION SUMMARY

ANALYSIS TYPE - DYN
SOLUTION FORM - DIM

DYN. INIT. COND. CODE - 0
OUTPUT INTERVAL - 200
DEBUG PRINT CODE - 0
RESTART FILE FLAG - 0
UPDATE OPTION - 1
START UP OPTION - 0
NO. OF POINT LOADS - 1
FLOW FIELD NUMBER - 1

DIRECT ITERATION METHOD DYNAMIC PARAMETERS
DEFLECT. ERROR TOLERANCE - .10000E-02

ELEMENT	EA	UNIT MASS	LENGTH	TIME STEP
1	.24000E+06	.556755E+00	.500777E+02	.638806E-01

TIME STEP DATA

INITIAL TIME STEP	.50000E-02
MAXIMUM TIME	.20000E+02
BEGINNING TIME	0.
UPDATE TIME	.50000E-02
ALPHA.BETA.GAMMA	0.

.83333E-01 .50000E+00

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

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OUTPUT TIME INTERVAL = .100000E+01

TIME = 0. DYNAMIC INCREMENT = 0

NODE	X	Y	Z	VX	VY	VZ	LLT	TRANSIUM
1	0.	0.	0.	0.	0.	0.	1	.150000E+03
2	-.102974E+02	-.490075E+02	0.	0.	0.	0.		

NUMBER OF ITERATIONS 0

TIME = .10000E+01 DYNAMIC INCREMENT = 200

NODE	X	Y	Z	VX	VY	VZ	LLT	TRANSIUM
1	0.	0.	0.	0.	0.	0.	1	.151000E+03
2	-.496087E+01	-.490223E+02	.463813E-04	.244741E+01	-.691057E-01	-.116821E-04		

NUMBER OF ITERATIONS 3

STEP 251 CONVERGED IN 2 ITERATIONS. NEW DT AND DTU =

STEP 300 CONVERGED IN 2 ITERATIONS. NEW DT AND DTU =

TIME = .20050E+01 DYNAMIC INCREMENT = 313

NODE	X	Y	Z	VX	VY	VZ	LLT	TRANSIUM
1	0.	0.	0.	0.	0.	0.	1	.120000E+03
2	-.619332E+01	-.493028E+02	.169602E-03	.432752E+01	-.534880E+00	-.446311E-04		

NUMBER OF ITERATIONS 3

STEP 350 CONVERGED IN 2 ITERATIONS. NEW DT AND DTU =

TIME = .24050E+01 DYNAMIC INCREMENT = 356

NODE	X	Y	Z	VX	VY	VZ	LLT	TRANSIUM
1	0.	0.	0.	0.	0.	0.	1	.150000E+03
2	-.200600E+01	-.500156E+02	.207791E-03	.524811E+01	-.792071E+00	-.849095E-04		

NUMBER OF ITERATIONS 3

TIME = .39850E+01 DYNAMIC INCREMENT = 381

NODE	X	Y	Z	VX	VY	VZ	LLT	TRANSIUM
1	0.	0.	0.	0.	0.	0.	1	.150000E+03
2	-.496000E+01	-.505480E+02	.199866E-03	.524865E+01	-.171927E+00	-.119421E-03		

NUMBER OF ITERATIONS 3

STEADY-STATE FEM PROGRAM - FIRST CASE NO. 3 - PENDULUM

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TIME = .49850E+01 DYNAMIC INCREMENT = .406

NODE	X	Y	Z	VX	VY	VZ	ELI	EXTENSION
1	0.	0.	0.	0.	0.	0.	1	.37320E+03
2	.73207E+01	-.502610E+02	-.147397E-03	.411311E+01	.748323E+00	-.171894E-03	1	.37320E+03

NUMBER OF ITERATIONS 3

TIME = .59850E+01 DYNAMIC INCREMENT = .431

NODE	X	Y	Z	VX	VY	VZ	ELI	EXTENSION
1	0.	0.	0.	0.	0.	0.	1	.37320E+03
2	.101287E+02	-.491506E+02	.631849E-04	.222771E+01	.136511E+01	-.149349E-03	1	.37320E+03

NUMBER OF ITERATIONS 3

TIME = .69850E+01 DYNAMIC INCREMENT = .456

NODE	X	Y	Z	VX	VY	VZ	ELI	EXTENSION
1	0.	0.	0.	0.	0.	0.	1	.37320E+03
2	.109376E+02	-.480130E+02	-.318934E-04	.229264E+00	.585172E+00	-.149405E-03	1	.37320E+03

NUMBER OF ITERATIONS 3

TIME = .79850E+01 DYNAMIC INCREMENT = .481

NODE	X	Y	Z	VX	VY	VZ	ELI	EXTENSION
1	0.	0.	0.	0.	0.	0.	1	.37320E+03
2	.989433E+01	-.483097E+02	-.118079E-03	.146142E+01	.114805E+01	-.176432E-03	1	.37320E+03

NUMBER OF ITERATIONS 3

TIME = .89850E+01 DYNAMIC INCREMENT = .506

NODE	X	Y	Z	VX	VY	VZ	ELI	EXTENSION
1	0.	0.	0.	0.	0.	0.	1	.37320E+03
2	.729571E+01	-.498244E+02	-.178043E-03	.287166E+01	.153022E+01	-.141666E-03	1	.37320E+03

NUMBER OF ITERATIONS 3

STEADY-STATE FREE PENDULUM - TEST CASE NO. 3 - PENDULUM

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TIME = .14985E+02 DYNAMIC INCREMENT = 656

MODE	X	Y	Z	VX	VY	ELL	FUNCTION
1	0.	0.	0.	0.	0.	1	FUNCTION
2	-.570494E+01	-.501324E+02	.134887E-03	.215100E+01	-.705104E+00	1	FUNCTION

NUMBER OF ITERATIONS 3

TIME = .15985E+02 DYNAMIC INCREMENT = 681

MODE	X	Y	Z	VX	VY	ELL	FUNCTION
1	0.	0.	0.	0.	0.	1	FUNCTION
2	-.327458E+01	-.505135E+02	.173302E-03	.340937E+01	.347319E-01	1	FUNCTION

NUMBER OF ITERATIONS 3

TIME = .16985E+02 DYNAMIC INCREMENT = 706

MODE	X	Y	Z	VX	VY	ELL	FUNCTION
1	0.	0.	0.	0.	0.	1	FUNCTION
2	-.594495E-01	-.501112E+02	.172056E-03	.393024E+01	.642448E+00	1	FUNCTION

NUMBER OF ITERATIONS 3

TIME = .17985E+02 DYNAMIC INCREMENT = 731

MODE	X	Y	Z	VX	VY	ELL	FUNCTION
1	0.	0.	0.	0.	0.	1	FUNCTION
2	-.352210E+01	-.494765E+02	.133970E-03	.368230E+01	.400957E+00	1	FUNCTION

NUMBER OF ITERATIONS 3

TIME = .18985E+02 DYNAMIC INCREMENT = 756

MODE	X	Y	Z	VX	VY	ELL	FUNCTION
1	0.	0.	0.	0.	0.	1	FUNCTION
2	-.641017E+01	-.494201E+02	.700757E-04	.279921E+01	-.220686E+00	1	FUNCTION

NUMBER OF ITERATIONS 3

SLAUGHTER FREE FURN - TEST CASE NO. 3 - PENDULUM

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TIME = .20000E+02 DYNAMIC INCREMENT = 1/5

NODE	X	V	Z	VX	VY	VZ	EL	ELMSION
1	0.	0.	0.	0.	0.	0.	1	-.36426E+03
2	.815342E+01	-.496287E+02	-.845991E-03	.135772E+01	-.544509E-01	-.176576E-01		

NUMBER OF ITERATIONS 3

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

LOAD CASE PARAMETERS

SUBANALYSIS TYPE - MUDE

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SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

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SOLUTION OPTION SUMMARY

ANALYSIS TYPE - MODE
SOLUTION FORM - MMK

MODIFIED NEWTON-RAPHSON SOLUTION PARAMETERS

STEP SIZE CONTROL NO. - 2
ITERATION LIMIT - 20
NO. OF CONV. TRIALS - 3
MNA UPDATE INTERVAL - 205
NUMERICAL DAMPING - 0.
RESIDUAL ERROR TOLERANCE - .10000E-02
DEFLECT. ERROR TOLERANCE - .10000E-02
1-D SEARCH FACTOR - 0.
EXTRAPOLATION PARAMETER - .50000E+00

SEADYN-- SEADYN FILE FORM - TEST CASE NO. 3 - PENDULUM

MODE 1					
CIRC. FREQ.	NAT. FREQ.	PERIOD			
HAD/SEC	CYC/SEC	SEC			
.47756E+00	.76007E-01	.13157E+02			
MODE SHAPE					
X	Y	Z			
0.	0.	0.			
.17571E-01	.28864E-02	0.			
MODE 2					
CIRC. FREQ.	NAT. FREQ.	PERIOD			
HAD/SEC	CYC/SEC	SEC			
.47756E+00	.76007E-01	.13157E+02			
MODE SHAPE					
X	Y	Z			
0.	0.	0.			
.48560E-09	-.29556E-08	.17806E-01			
MODE 3					
CIRC. FREQ.	NAT. FREQ.	PERIOD			
HAD/SEC	CYC/SEC	SEC			
.10246E+01	.16307E+00	.61322E+01			
MODE SHAPE					
X	Y	Z			
0.	0.	0.			
-.28864E-02	.17571E-01	.29452E-08			
MODE 4					
CIRC. FREQ.	NAT. FREQ.	PERIOD			
HAD/SEC	CYC/SEC	SEC			
.48606E+05	.77486E+04	.12906E-03			
MODE SHAPE					
X	Y	Z			
0.	0.	0.			
.27035E+00	0.	0.			
MODE 5					
CIRC. FREQ.	NAT. FREQ.	PERIOD			
HAD/SEC	CYC/SEC	SEC			
.48606E+05	.77486E+04	.12906E-03			
MODE SHAPE					
X	Y	Z			
0.	0.	0.			
.27035E+00	0.	0.			
MODE 6					
CIRC. FREQ.	NAT. FREQ.	PERIOD			
HAD/SEC	CYC/SEC	SEC			
.48606E+05	.77486E+04	.12906E-03			
MODE SHAPE					
X	Y	Z			
0.	0.	0.			
.27035E+00	0.	0.			

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - PENDULUM

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NEW PROBLEM DATA

NUMBER OF MODELS = 2
NUMBER OF ELEMENTS = 1
GRAVITY DIRECTION = 1
DYNAMIC OPTION FLAG = -2
INPUT ECHO FLAG = 1
DRAG MODEL OVERRIDE = 0
SHIP LOAD FILE FLAG = 0
GRAVITATIONAL ACCELERATION = .321700E+02

STEADY-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

10/J2/81

11-14-03.

PAGE

1

FLUID MEDIA DEFINITIONS

INTERFACE DEPTH KINEMATIC VISCOSITY SPECIFIC WEIGHT

1 .25000E+03 .1700E-04 .65000E+02

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

10/02/01

11.14.03.

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NODE DATA

NODE	CURR	X	Y	Z	CONSTRAINTS
1	0	0.	0.	0.	1 1 1
2	0	0.	-.50000E+02	0.	0 0 0

STEADY-- STEADY FREE FLOW - TEST CASE NO. 3 - PENDULUM

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ELEMENT INPUT DATA

EL	N1	N2	N3	MAT	KOMP	FLAG	TENSION	LENGTH	MEDIUM
1	1	2	0	1	0	0	.34600E+05	0.	1

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

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BODY LOCATION DATA

BEGIN	END	INCH	BODY NO.	LIMIT SET
2	2	1	1	0

STEADY-- STEADY FREE FALL - TEST CASE NO. 1 - PENDULUM

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BODY DATA TABLE

BODY NO.	DRAG FN. NO.	BUOYANCY	DIAMETER	LENGTH	ADDED MASS COEF	WIND DRAG COEF	SUR COF	WIND UP INERTIA	NO
1	0	-0.34000E+05	.10000E+02	0.	.10000E+01	0.	0.	0.	1

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

10/02/01

11.14.03.

0

CABLE MATERIAL PROPERTY DATA

PROPERTY SET NO. = 1
DRAG COEF. NO. = 0
DIAMETER = .250000E+00
WEIGHT PER UNIT LENGTH = .137000E+02
ADDED MASS COEFFICIENT = .100000E+01
REFERENCE MEDIUM CODE = 1
ULTIMATE TENSION = 0.
MASS PER UNIT LENGTH = .523519E+00
NO. OF POINTS ON TENSION/STRAIN CURVE = 0
EXPONENT FORM COEFFICIENTS = .36000E+05 .10000E+01
MATERIAL DAMPING PARAMETERS(CAL) = .100000E+04 0.

SEADYN-- SEADYN FREE PUMP - TEST CASE NO. 3 - PENDULUM

10/02/01

11.34.03. PAGE

FLUID FIELD DATA SETS

SET CODE	PARAMETERS				
1	.05000E+01	0.	0.	0.	0.
	0.	0.	0.	0.	0.

21

TIME FUNCTION DEFINITIONS

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SEADYN-- SEADYN PRE FORM - TEST CASE NO. 3 - PENULUM

NODE POINT DATA SUMMARY

NODE NO.	INITIAL COORDINATES			FIXITY CODES			LIMIT SET NO.	GRAVITY LOADS			VIRTUAL MASSES		
	X	Y	Z	A	V	I		X	Y	Z	A	V	Z
1	0.	0.	0.	1	1	1	0	-20041+03 0.	-90841+01	-90841+01	-90841+01	-90841+01	-90841+01
2	0.	-5000E+02 0.	0.	0	0	0	1	-34201+03 0.	-31491+04	-31491+04	-31491+04	-31491+04	-31491+04

SEADYN-- SEADYN ENR FORM - TEST CASE NO. 3 - PENDULUM

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ELEMENT SUMMARY DATA

ELI CONNECTION DATA				MAT LUMP		INITIAL		UNSTRETCHED		INITIAL		RESIDUAL	
NO.	N1	N2	N3	NU.	CODE	NU.	CODE	TENSION	LENGTH	LENGTH	MASS	MASS	
1	1	2		1	0	1	0	.34600E+05	.29289E+02	.50000E+02	.14287E+01		

SEADYN-- SEADYN FILE FORM - TEST CASE NO. 1 - PENGUIN

ADDITIONAL ELEMENT DATA

ELEMENT	SLOPE	TRANSIT TIME (APPROX)
1	0.	0.
	-.10000E+01	.11154E+00

HALF-BANDWIDTH = 0

STEADY-- STEADY FREE FORM - TEST CASE NO. 3 - PENDULUM

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LOAD CASE PARAMETERS

SUBANALYSIS TYPE - DEAD

SOLUTION DATA RESET VNR
OUTPUT DATA SELECTIONS
STEP NUMBER INTERVAL = 500
PARAMETER INTERVAL = 0.
DEBUG OUTPUT FLAG = 0

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STEADY-- STEADY FHE FHEM - TEST CASE NO. 3 - MINIMUM

SOLUTION OPTION SUMMARY

ANALYSIS TYPE = DEAD
SOLUTION FORM = VM

NO. OF STATIC STEPS = 1
OUTPUT INTERVAL = 500
DEBUG PRINT CODE = 0
RESTART FILE FLAG = 0
UPDATE OPTION = 1
START UP OPTION = 0
NO. OF POINT LOADS = 0
FLOW FIELD NUMBER = 0

VISCOUS RELAXATION SOLUTION PARAMETERS
INTEGRATION PARAMETER = .100001+01
INITIAL STEP SIZE = .100001+01
INITIAL DAMPING = .100001-02
ITERATION LIMIT = 200

STEADY-STATE DYN ANALYSIS - TEST CASE NO. 3 - PENDULUM

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DEAD LOAD INCREMENT = 0										LOAD FACTOR										U.									
NODE		X		Y		Z		VZ		VY		VX		U.		VZ		VY		VX		U.							
1	0.	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.							
2	0.	2	0.	-0.500000E+02	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.							
DEAD LOAD INCREMENT = 14										LOAD FACTOR										-1.0000E+01									
NODE		X		Y		Z		VZ		VY		VX		U.		VZ		VY		VX		U.							
1	0.	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.							
2	0.	2	0.	-0.498097E+02	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.							
DEAD LOAD INCREMENT = 14										LOAD FACTOR										-1.0000E+01									
NODE		X		Y		Z		VZ		VY		VX		U.		VZ		VY		VX		U.							
1	0.	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.							
2	0.	2	0.	-0.498097E+02	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.							

SEADYN-- STADYN FREE TURN - TEST CASE NO. 3 - PENDULUM

LOAD CASE PARAMETERS

SUBANALYSIS TYPE - LIVE

SOLUTION DATA RESET MNR

STATIC STEP DATA

NUMBER OF STEPS = 5

START UP OPTION = 5

HEADING INCREMENT = 0.

TOTAL HEADING CHANGE = 0.

POINT LOADS DATA

LOAD SET LOAD COMPONENTS

1 --.0000E+04 0. 0.

LOAD SET VARIATION CODES

SET 1 = 1

SET 2 = 0

SET 3 = 0

GRAVITY = 0

CURRENT FIELD DATA

FLUX FIELD NUMBER = 1

FLUX FIELD MULTIPLIER = .10000E+01

FLUX VARIATION CODE = 0

OUTPUT DATA SELECTIONS

STEP NUMBER INTERVAL = 500

PARAMETER INTERVAL = 0.

DEBUG OUTPUT FLAG = 0

BEGIN END INC
2 2 1

SEADYN-- SEADYN PRE FORM - TEST CASE NO. 3 - PENDULUM

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SOLUTION OPTION SUMMARY

ANALYSIS TYPE - LIVE
SOLUTION FORM - MNR

NO. OF STATIC STEPS - 5
OUTPUT INTERVAL - 500
DEBUG PRINT CODE - 0
RESTART FILE FLAG - 0
UPDATE OPTION - 1
START UP OPTION - 5
NO. OF POINT LOADS - 1
FLOW FIELD NUMBER - 1

MODIFIED NEWTON-RAPHSON SOLUTION PARAMETERS

STEP SIZE CONTROL NO. - 2
ITERATION LIMIT - 200
NO. OF CONV. TRIALS - 3
MNR UPDATE INTERVAL - 205
NUMERICAL DAMPING - 0.
RESIDUAL ERROR TOLERANCE - .10000E-02
DEFLECT. ERROR TOLERANCE - .10000E-02
3-D SEARCH FACTOR - 0.
EXTRAPOLATION PARAMETER - .50000E+00

SEADYN-- SEADYN PWR FORM - TEST CASE NO. 3 - PENDULUM

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STEADY STATE INCREMENT = 0 LOAD FACTOR = 0.

NODE	X	Y	Z	VX	VY	VZ	ELF	TENSION
1	0.	0.	0.	0.	0.	0.	1	.3470091E+05
2	0.	-.498097E+02	0.	0.	0.	0.		

NUMBER OF ITERATIONS 0

STEP 5 CONVERGED IN 2 ITERATIONS. NEW STEP SIZE = .18182E+00

STEP 6 CONVERGED IN 2 ITERATIONS. NEW STEP SIZE = .40000E+00

STEADY STATE INCREMENT = 0 LOAD FACTOR = .10000E+01

NODE	X	Y	Z	VX	VY	VZ	ELF	TENSION
1	0.	0.	0.	0.	0.	0.	1	.347337E+05
2	-.103488E+02	-.490985E+02	0.	0.	0.	0.		

NUMBER OF ITERATIONS 3

SEADYN-- SEADYN FREE FUMM - TEST CASE NO. 1 - PENDULUM

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LOAD CASE PARAMETERS

SUBANALYSIS TYPE = DYN

CURRENT FIELD DATA

FLOW FIELD NUMBER = 1
FLOW FIELD MULTIPLIER = .10000E+01
FLOW VARIATION CODE = 0

TIME STEP DATA

INITIAL TIME STEP = .50000E-02
MAXIMUM TIME = .20000E+02
BEGINNING TIME = 0.
UPDATE TIME = .50000E-02
ALPHA/BETAGAMMA = 0.

.83333E-01 .50000E+00

POINT LOADS DATA

BEGIN END INC
2 2 1

LOAD SET LOAD COMPONENTS

.20000E+01

1 .80000E+04 0.

LOAD SET VARIATION CODES

SET 1 = 1

SET 2 = 0

SET 3 = 0

GRAVITY = 0

OUTPUT DATA SELECTIONS

STEP NUMBER INTERVAL = 200

PARAMETER INTERVAL = 0.

DEBUG OUTPUT FLAG = 0

SEADYN-- SEADYN FILE FORM - TEST CASE NO. 3 - PENDULUM

SOLUTION OPTION SUMMARY

ANALYSIS TYPE = DYN
SOLUTION FORM = DIM

DYN. INIT. COND. CODE = 0
OUTPUT INTERVAL = 200
DEBUG PRINT CODE = 0
RESTART FILE FLAG = 0
UPDATE OPTION = 1
START UP OPTION = 0
NO. OF POINT LOADS = 1
FLOW FIELD NUMBER = 1

DIRECT ITERATION METHOD DYNAMIC PARAMETERS
DEFLECT. ERROR TOLERANCE = .10000E-02

ELEMENT	EA	UNIT MASS	LENGTH	TIME STEP
1	.360000E+05	.265544E+00	.501773E+02	.960816E-01

TIME STEP DATA

INITIAL TIME STEP	.50000E-02
MAXIMUM TIME	.20000E+02
BEGINNING TIME	0.
UPDATE TIME	.50000E-02
ALPHA, BETA, GAMMA	0.
	.43333E-01
	.50000E+00

OUTPUT TIME INTERVAL = .100000E+01

TIME = 0. DYNAMIC INCREMENT = 0

NODE	X	Y	Z	VX	VY	VZ	ELL	TENSION
1	0.	0.	0.	0.	0.	0.	1	.369731E+05
2	-.103488E+02	-.440985E+02	0.	0.	0.	0.		

NUMBER OF ITERATIONS 0

TIME = .100000E+01 DYNAMIC INCREMENT = 200

NODE	X	Y	Z	VX	VY	VZ	ELL	TENSION
1	0.	0.	0.	0.	0.	0.	1	.369731E+05
2	-.450889E+01	-.491034E+02	.965166E-04	.246052E+01	-.239777E-01	-.137494E-04		

NUMBER OF ITERATIONS 1

TIME = .200000E+01 DYNAMIC INCREMENT = 400

NODE	X	Y	Z	VX	VY	VZ	ELL	TENSION
1	0.	0.	0.	0.	0.	0.	1	.369731E+05
2	-.642450E+01	-.441963E+02	.169707E-03	.438647E+01	-.184145E+00	-.455396E-04		

NUMBER OF ITERATIONS 2

STEP 548 CONVERGED IN 2 ITERATIONS. NEW DT AND DTU = .100000E-01

TIME = .300000E+01 DYNAMIC INCREMENT = 574

NODE	X	Y	Z	VX	VY	VZ	ELL	TENSION
1	0.	0.	0.	0.	0.	0.	1	.369731E+05
2	-.126317E+01	-.449500E+02	.205359E-03	.537776E+01	-.415884E+00	-.875714E-04		

NUMBER OF ITERATIONS 3

TIME = .400000E+01 DYNAMIC INCREMENT = 674

NODE	X	Y	Z	VX	VY	VZ	ELL	TENSION
1	0.	0.	0.	0.	0.	0.	1	.369731E+05
2	-.315902E+01	-.449461E+02	.197030E-03	.529651E+01	-.448444E+00	-.132060E-03		

NUMBER OF ITERATIONS 3

STEP 700 CONVERGED IN 2 ITERATIONS. NEW DT AND DTU = .200000E-01

STEADY- STATE FUEL PUMP - TEST CASE NO. 3 - PENDULUM

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TIME = .10000E+02 DYNAMIC INCREMENT = 895

MODE	X	Y	Z	VX	VY	VZ	ELL	ELNSUM
1	0.	0.	0.	0.	0.	0.	1	.31799E+05
2	-.26766E+01	-.48562E+02	-.19267E-03	-.36483E+01	-.10497E+01	-.10347E-01		

NUMBER OF ITERATIONS 3

TIME = .11000E+02 DYNAMIC INCREMENT = 920

MODE	X	Y	Z	VX	VY	VZ	ELL	ELNSUM
1	0.	0.	0.	0.	0.	0.	1	.36379E+05
2	-.12515E+01	-.49855E+02	-.17534E-03	-.32466E+01	-.13944E+01	-.64570E-04		

NUMBER OF ITERATIONS 3

TIME = .12000E+02 DYNAMIC INCREMENT = 945

MODE	X	Y	Z	VX	VY	VZ	ELL	ELNSUM
1	0.	0.	0.	0.	0.	0.	1	.37259E+05
2	-.43791E+01	-.51044E+02	-.12200E-03	-.21110E+01	-.83944E+00	-.32904E-04		

NUMBER OF ITERATIONS 3

TIME = .13000E+02 DYNAMIC INCREMENT = 970

MODE	X	Y	Z	VX	VY	VZ	ELL	ELNSUM
1	0.	0.	0.	0.	0.	0.	1	.38226E+05
2	-.61073E+01	-.51336E+02	-.43865E-04	-.48439E+00	-.29549E+00	-.16164E-04		

NUMBER OF ITERATIONS 3

TIME = .14000E+02 DYNAMIC INCREMENT = 995

MODE	X	Y	Z	VX	VY	VZ	ELL	ELNSUM
1	0.	0.	0.	0.	0.	0.	1	.38941E+05
2	-.61301E+01	-.50519E+02	-.41545E-04	-.12247E+01	-.12420E+01	-.18557E-04		

NUMBER OF ITERATIONS 3

STADYN-- STADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

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TIME = .15000E+02 DYNAMIC INCREMENT = 1020
 NODE X Y Z
 1 0. 0. 0. 0.
 2 -.557305E+01 10.115498E-03
 NUMBER OF ITERATIONS 3
 VX VY Z
 0. 0. 0.
 .63494E+01 .134571E+01 0.
 .00000E+00 .00000E+00 .00000E+00
 TENSION
 .33194E+03

TIME = .16000E+02 DYNAMIC INCREMENT = 1045
 NODE X Y Z
 1 0. 0. 0. 0.
 2 -.185613E+01 10.163399E-03
 NUMBER OF ITERATIONS 3
 VX VY Z
 0. 0. 0.
 .349791E+01 .547660E+01 0.
 .00000E+00 .00000E+00 .00000E+00
 TENSION
 .108000E+03

TIME = .17000E+02 DYNAMIC INCREMENT = 1070
 NODE X Y Z
 1 0. 0. 0. 0.
 2 .139054E+01 10.177501E-03
 NUMBER OF ITERATIONS 3
 VX VY Z
 0. 0. 0.
 .369196E+01 .596756E+01 0.
 .00000E+00 .00000E+00 .00000E+00
 TENSION
 .108754E+03

TIME = .18000E+02 DYNAMIC INCREMENT = 1095
 NODE X Y Z
 1 0. 0. 0. 0.
 2 .449813E+01 10.155944E-03
 NUMBER OF ITERATIONS 3
 VX VY Z
 0. 0. 0.
 .322286E+01 .130596E+01 0.
 .00000E+00 .00000E+00 .00000E+00
 TENSION
 .113701E+03

TIME = .19000E+02 DYNAMIC INCREMENT = 1120
 NODE X Y Z
 1 0. 0. 0. 0.
 2 .682624E+01 10.102673E-03
 NUMBER OF ITERATIONS 3
 VX VY Z
 0. 0. 0.
 .215445E+01 .108547E+01 0.
 .00000E+00 .00000E+00 .00000E+00
 TENSION
 .165745E+03

SEADYN-- SEADYN FREE FURN - TEST CASE NO. 3 - PENDULUM

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FILE NO. 1001.00

N E N P R O B L E M D A T A

NUMBER OF NODES = 2
NUMBER OF ELEMENTS = 1
GRAVITY DIRECTION = -2
DYNAMIC OPTION FLAG = 1
INPUT ECHO FLAG = 1
DRAG MODEL DVSMMIDF = 0
SHIP LOAD FILE FLAG = 0
GRAVITATIONAL ACCELERATION = .321700E+02

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SEADYN-- SEADYN FILE FORM - TEST CASE NO. 3 - PENDULUM

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FLUID MEDIA DEFINITIONS

INTERFACL DEPTH KINEMATIC VISCOSITY SPECIFIC WEIGHT

1 .25000E+03 .17700E-04 .64000E+02

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STEADY-- STEADY FINE FDM - TEST CASE NO. 3 - PENDULUM

NODE DATA

NODE	CODE	X	Y	Z	CONSTRAINTS
1	0	0.	0.	0.	1 1 1
2	0	0.	-.50000E+02	0.	0 0 0

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - PENDULUM

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ELEMENT INPUT DATA

EL	N1	N2	N3	MAT	RAMP	FLAG	TENSION	LENGTH	MEDIUM
1	1	2	0	1	0	0	.34600E+05	0.	1

SEADYN-- SEADYN FREE PUMP - TEST CASE NO. 3 - PENDULUM

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BUDDY LOCATION DATA

BEGIN	END	INCH	BUDDY NO.	LIMIT SET
2	2	1	1	0

SEADYN-- SEADYN PWR FORM - TEST CASE NO. 3 - PENDULUM
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 BODY DATA TABLE
 BODY NO. DRAG FR.MU. BUOYANCY DIAMETER LENGTH ADDED MASS CULP WIND DRAG COEF SUR CUR DRAG MOM OF INERTIA MU

1	0	-0.34000E+05	.10000E+02	0.	.20000E+01	0.	0.	0.	0.
---	---	--------------	------------	----	------------	----	----	----	----

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SEADYN-- SEADYN FREE FIRM - TEST CASE NO. 1 - PENDULUM

CABLE MATERIAL PROPERTY DATA

PROPERTY SET NO. =	1
DWAG CUEP. NO. =	0
DIAMETER =	.250000E+00
HEIGHT PER UNIT LENGTH =	.137000E+02
ADDED MASS COEFFICIENT =	.100000E+01
REFERENCE PLDUM CODE =	1
ULTIMATE TENSION =	0.
MASS PER UNIT LENGTH =	.523519E+00
NO. OF POINTS ON TENSION/STRAIN CURVE =	2

	TENSION	STRAIN	LA
1	.360000E+05	.150000E+00	.240000E+06
2	.450000E+05	.240000E+00	.100000E+06

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

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FLOW FIELD DATA SETS

SET CODE	PARAMETERS				
1	0.	0.	0.	0.	0.
1	.84000E+01	0.	0.	0.	0.
	0.	0.	0.	0.	0.

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TYPE FUNCTION DEFINITIONS

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SEADYN-- SEADYN FILE FORM - TEST CASE NO. 3 - PENULUM

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NUDE POINT DATA SUMMARY

NODE NO.	INITIAL COORDINATES			FIXITY CODES			LIMIT SET	BODY NO.	GRAVITY	LOADS	VIRTUAL MASSES		
	X	Y	Z	X	Y	Z					X	Y	Z
1	0.	0.	0.	1	1	1	0	0	-0.30176+03 0.	0.	-0.13608+02	-0.13608+02	-0.13608+02
2	0.	-0.5000E+02 0.	0.	0	0	0	0	1	0.	0.	0.	0.	0.

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - PENDULUM

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ELEMENT SUMMARY DATA

E11 CONNECTION DATA				MAT COMP MTD.		INITIAL TENSION		UNSTRETCHED LENGTH		INITIAL LENGTH		RESIDUAL MASS	
NO.	N1	N2	N3	NO.	CODE	NO.	CODE						
1	1	2	1	1	0	1	0	.34600E+05	.44051E+02	.50000E+02	.21509E+01		

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENULUM

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ADDITIONAL ELEMENT DATA

ELEMENT	SLIPES	TRANSIT TIME (APPROX)
1	-.10000E+01	0.

HALF-BANDWIDTH = 6

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SEADYN-- SEADYN FILE FORM - TEST CASE NO. 1 - PENDULUM

LOAD CASE PARAMETERS

SUBANALYSIS TYPE = DEAD

SOLUTION DATA RESET VRR
OUTPUT DATA SELECTIONS
STEP NUMBER INTERVAL = 500
PARAMETER INTERVAL = 0.
DEBUG OUTPUT FLAG = 0

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

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SOLUTION OPTION SUMMARY

ANALYSIS TYPE - DEAD
SOLUTION FORM - VRM

NO. OF STATIC STEPS - 1
OUTPUT INTERVAL - 500
DEBUG PRINT CODE - 0
RESTART FILE FLAG - 0
UPDATE OPTION - 1
START UP OPTION - 0
NO. OF POINT LOADS - 0
FLOW FIELD NUMBER - 0

VISCOUS RELAXATION SOLUTION PARAMETERS
INTEGRATION PARAMETER - .10000E+01
INITIAL STEP SIZE - .10000E+01
INITIAL DAMPING - .10000E-02
ITERATION LIMIT - 200

STEADY-- STEADY FILE FORM - TEST CASE NO. 3 - PENDULUM

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DEAD LOAD INCREMENT = 0 LOAD FACTOR 0.

NUDE	X	Y	Z	VX	VY	VZ	ELT	TRANSUM
1	0.	0.	0.	0.	0.	0.	1	.3660001E+00
2	0.	-.500000E+02	0.	0.	0.	0.		

SLOW CONVERGENCE ON STEP
 LAST FOUR VELOCITY NORMS
 LAST RESIDUAL NORMS

203619E+01 .160132E+01 .464673E+00
 .546342E+04 .150761E+04 .932798E+02

-1360271-01

NEW STEP SIZE = .20000E+01

DEAD LOAD INCREMENT = 4 LOAD FACTOR .10000E+01

NUDE	X	Y	Z	VX	VY	VZ	ELT	TRANSUM
1	0.	0.	0.	0.	0.	0.	1	.3660001E+00
2	0.	-.499217E+02	0.	0.	0.	0.		

SEADYN-- SEADYN FREE FORM - TEST CASE NO. J - PENDULUM

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LOAD CASE PARAMETERS

SUBANALYSIS TYPE - LIVE

SOLUTION DATA RESET MNM

STATIC STEP DATA

NUMBER OF STEPS = 5

START UP OPTION = 5

HEADING INCREMENT = 0.

TOTAL HEADING CHANGE = 0.

POINT LOADS DATA

LOAD SET 1 --.0000E+04 0.

LOAD SET VARIATION CODES

SET 1 = 1

SET 2 = 0

SET 3 = 0

GRAVITY = 0

CURRENT FIELD DATA

FLOW FIELD NUMBER = 1

FLOW FIELD MULTIPLIER = .1000E+01

FLOW VARIATION CODE = 0

OUTPUT DATA SELECTIONS

STEP NUMBER INTERVAL = 500

PARAMETER INTERVAL = 0.

DEBUG OUTPUT FLAG = 0

BEGIN END INC
2 2 1

SEADYN-- STADYN FILE FMM - TEST CASE NO. 3 - PENDULUM

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SOLUTION OPTION SUMMARY

ANALYSIS TYPE = LIVE
SOLUTION FMM = MNR

NO. OF STATIC STEPS = 5
OUTPUT INTERVAL = 500
DEBUG PRINT CODE = 0
WE START FILE FLAG = 0
UPDATE OPTION = 1
START UP OPTION = 5
NO. OF POINT LOADS = 1
FLW FIELD NUMBER = 1

MODIFIED NEWTON-RAPHSON SOLUTION PARAMETERS

STEP SIZE CONTROL NO. = 2
ITERATION LIMIT = 200
NO. OF CONV. TRIALS = 3
MNR UPDATE INTERVAL = 205
NUMERICAL DAMPING = 0.
REL TOL ERROR TOLERANCE = .10000E-02
DEFLECT. ERROR TOLERANCE = .10000E-02
L-U SEARCH FACTOR = 0.
EXTRAPOLATION PARAMETER = .50000E+00

STEADY-- STEADY FREE FORM - TEST CASE NO. 3 - PENDULUM

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STEADY STATE INCREMENT = 0 LOAD FACTOR 0.
 NODE X Y Z
 1 0. 0. 0.
 2 0. -.499517E+02 0.

LLI PENSION
 1 .143017E+05

VY 0. 0.
 VX 0. 0.
 VZ 0. 0.

NUMBER OF ITERATIONS 0

STEADY STATE INCREMENT = 4 LOAD FACTOR .10000E+01
 NODE X Y Z
 1 0. 0. 0.
 2 -.102974E+02 -.499007E+02 0.

LLI PENSION
 1 .150000E+05

VY 0. 0.
 VX 0. 0.
 VZ 0. 0.

NUMBER OF ITERATIONS 3

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SEAGY-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

LOAD CASE PARAMETERS

SUBANALYSIS TYPE = DYN

CURRENT FIELD DATA
FLOW FIELD NUMBER = 1
FLOW FIELD MULTIPLIER = -1.0000E+01
FLOW VARIATION CODE = 0
TIME STEP DATA
INITIAL TIME STEP = -5.0000E-02
MAXIMUM TIME = -2.0000E+02
BEGINNING TIME = 0.
UPDATE TIME = -5.0000E-02
ALPHA, BETA, GAMMA = 0.
POINT LOADS DATA
LOAD SET 1 - -8.0000E+04
LOAD COMPONENTS
LOAD SET VARIATION CODES
SET 1 = 1
SET 2 = 0
SET 3 = 0
GRAVITY = 0
OUTPUT DATA SELECTIONS
STEP NUMBER INTERVAL = 200
PARAMETER INTERVAL = 0.
DEBUG OUTPUT FLAG = 0

.83333E-01
-5.0000E+00
BEGIN END INC
2 2 1

.20000E+01

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SEADYN-- SEADYN FILE PUMP - TEST CASE NO. 3 - PERIODIC

SOLUTION OPTION SUMMARY

ANALYSIS TYPE = DYN
SOLUTION FORM = UIM

DYN. INIT. COND. CODE = 0
OUTPUT INTERVAL = 200
DEBUG PRINT CODE = 0
RESTART FILE FLAG = 0
UPDATE OPTION = 1
START UP OPTION = 0
NO. OF POINT LOADS = 1
FLOW FIELD NUMBER = 1

DIRECT ITERATION METHOD DYNAMIC PARAMETERS
DEFLECT. ERROR TOLERANCE = .10000E-02

ELEMENT	LA	UNIT MASS	LENGTH	TIME STEP
1	.240000E+06	.45675E+00	.500777E+02	.638806E-01

TIME STEP DATA

INITIAL TIME STEP	.50000E-02
MAXIMUM TIME	.20000E+02
BEGINNING TIME	0.
UPDATE TIME	.50000E-02
ALPHA, BETA, GAMMA	0.

.8333E-01 .50000E+00

SEADYN-- SEADYN PRET FORM - TEST CASE NO. 3 - PLINULUM

11-55-010 141210101

TIME - .59900101 DYNAMIC INCREMENT - 431

	7	Y	X	C	3600W
	0.	0.	0.	0.	
	20+3814505	10+1109677			
	0.				
	0.				

DECLARATION

TIME - .59900E+01 DYNAMIC INCREMENT = .450

MODE	X	Y	Z
1	0.	0.	0.
2	-.579541E+01	-.500545E+02	-.11435

NUMBER OF ITERATIONS

TIME - 3MI
DYNAMIC INCREMENT - 61

MODE	X	Y	Z
1	0.	0.	0.
2	1048774.02	-4898808.02	48429

NUMBER OF ITERATIONS

205. • DYNAMIC INCREMENT • 10.30066/ • 3411

DATE	X	Y	Z
1	0.	0.	0.
2	0.113811	-0.474856	-0.256977

NUMBER OF ITERATIONS

1911 - 1912 DYNAMIC INCREMENT - 531

[illegible]

NUMBER OF INFORMATION

SCADYN-- SEADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

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TIME = .99900E+01 DYNAMIC INCREMENT = 556
 NODE X Y Z
 1 0. 0. 0. 0.
 2 .815108E+01 -.493108E+02 -.143171E-03
 NUMBER OF ITERATIONS 3

TENSION
 .356006E+05

TIME = .10990E+02 DYNAMIC INCREMENT = 561
 NODE X Y Z
 1 0. 0. 0. 0.
 2 .531830E+01 -.505881E+02 -.170436E-03
 NUMBER OF ITERATIONS 3

TENSION
 .376698E+05

TIME = .11990E+02 DYNAMIC INCREMENT = 606
 NODE X Y Z
 1 0. 0. 0. 0.
 2 .173217E+01 -.511142E+02 -.168538E-03
 NUMBER OF ITERATIONS 3

TENSION
 .383970E+05

TIME = .12990E+02 DYNAMIC INCREMENT = 631
 NODE X Y Z
 1 0. 0. 0. 0.
 2 -.177759E+01 -.507056E+02 -.136958E-03
 NUMBER OF ITERATIONS 3

TENSION
 .373291E+05

TIME = .13990E+02 DYNAMIC INCREMENT = 656
 NODE X Y Z
 1 0. 0. 0. 0.
 2 -.462643E+01 -.496184E+02 -.829611E-04
 NUMBER OF ITERATIONS 3

TENSION
 .336956E+05

STAYU-- STAYU FREE FURN - TEST CASE NO. 3 - PENDULUM

	10/08/01	11.45.07.	PAGI	Zt.
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TIME - 3MI1 200006667 DYNAMIC INCREMENT - 112

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NUMERICAL DATA

TIME - 2411 2000000000 DYNAMIC INCREMENT - 773

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3 5011708-111 401 2384004

SEADYN-- SEADYN FILE FORM - FIRST CASE NO. 3 - PENDULUM

LEAD CASE PARAMETERS

SUBANALYSIS TYPE - HIDE

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11.15.07.

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SEADYN-- SEADYN PREP FORM - TEST CASE NO. 3 - PENDULUM

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11.36.25. PAGE

2

NEW PROBLEM DATA

NUMBER OF NODES = 2
NUMBER OF ELEMENTS = 1
GRAVITY DIRECTION = -2
DYNAMIC OPTION FLAG = 1
INPUT ECHO FLAG = 1
ORAG MODEL OVERWRITE = 0
SHIP LOAD FILE FLAG = 0

GRAVITATIONAL ACCELERATION = .321700E+02

SKAUTN-- SEADYN FREE PUMP - TEST CASE NO. 1 - PINGULUM

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FLUID MEDIA DEFINITIONS

INTERFACE DEPTH KINEMATIC VISCOSITY SPECIFIC WEIGHT

1 .25000E+03 .16800E-03 .76500E-01

SEADYN-- SEADYN FREE FUM - TEST CASE NO. 3 - PENDULUM

10/02/81

11.16.75.

PAGE

NODE DATA

NODE	CODE	A	X	Y	Z	CONSTRAINTS
1	C	0.	0.	0.	0.	1 1 1
2	O	0.	-5.0000E+02	0.	0.	0 0 0

SLADYN-- SLADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

10/02/81

11.16.25.

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ELEPHANT INPUT DATA

EL	N1	N2	N3	MAT	KOMP	FLAG	TENSION	LENGTH	MEDIUM
1	1	2	0	1	0	0	.14600E+05	0.	1

SEADYN-- SEADYN FREE FURN - TEST CASE NO. 3 - PENDULUM

10/02/81

11.30.25. PAUL

6.

BOUY LOCATION DATA

BEGIN	END	INCH	BODY NO.	LIMIT SET
2	2	1	1	0

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - PERIDULUM

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11.00.75.

PAGE

1

BODY DATA TABLE

BODY NO.	LEAD FN. NO.	BUIYANCY	DIAMETER	LENGTH	ADDED MASS CUBI	WIND DRAG COEF	SUR CUR DRAG	NUM OF TRIPLIA	MOO
1	0	-0.34000E+05	.1000E+02	0.	.1000E+01	0.	0.	0.	1

STADYN--- STADYN INCE FURN - TEST CASE NO. 3 - PENDULUM

10/02/81

11.16.25. PAUL

0

CABLE MATERIAL PROPERTY DATA

PROPERTY SET NO. = 1
ORAG COEF. NO. = 0
DIAMETER = .25000E+00
WEIGHT PER UNIT LENGTH = .137000E+02
ADDED MASS COEFFICIENT = .100000E+01
REFERENCE MEDIUM CODE = 1
ULTIMATE TENSION = 0.
MASS PER UNIT LENGTH = .425979E+00
NO. OF POINTS ON TENSION/STRAIN CURVE = 2

	TENSION	STRAIN	EA
1	.760000E+05	.150000E+00	.240000E+06
2	.450000E+05	.240000E+00	.100000E+06

SEADYN-- SEADYN PREC FORM - TEST CASE NO. 3 - PENDULUM

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FLOW FIELD DATA SETS

SET CODE	PARAMETERS				
1	0.0000101	0.	0.	0.	0.
	0.	0.	0.	0.	0.

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[illegible]

IN. NUMBER	CODE	PARAMETERS
1	-1	.100001+01
		0.
		0.
		0.

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○

○ ○ ○
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0. 0. 0. 0.

SEADYN-- SEADYN FILE FORM - TEST CASE NO. 3 - PENDULUM

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NOEL POINT DATA SUMMARY

NOEL NO.	INITIAL COORDINATES			FIXITY CODES			LIMIT SET			BODY NO.	GRAVITY LOADS			VIRTUAL MASSES		
	X	Y	Z	X	Y	Z	X	Y	Z		X	Y	Z	X	Y	Z
1	0.	0.	0.	1	1	1	1	0	0	0	-0.1017E+03	0.	0.	-0.1017E+03	-0.1017E+03	-0.1017E+03
2	0.	-0.5000E+02	0.	0	0	0	0	0	0	1	-0.1430E+05	0.	0.	-0.1064E+04	-0.1064E+04	-0.1064E+04

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - PENDULUM

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ELEMENT SUMMARY DATA

EFT CONNECTION DATA			MAT CLUMP NO.		INITIAL TENSION		UNSTRETCHED LENGTH		INITIAL LENGTH		RESIDUAL MASS	
NO.	N1	N2	N3	NO.	CODE	CODE	CODE	LENGTH	LENGTH	LENGTH	MASS	MASS
1	1	2	3	1	0	1	1	.44051E+02	.50000E+02	.25710E+02		

SEALIN-- SLADYN PREL FORM - TEST CASE NO. J - PENDULUM

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ADDITIONAL ELEMENT DATA

ELEMENT	U.	SLIPES	TRANSIT TIME (APPROX)
1	0.	-.10000E+01	0.

HALF-BANDWIDTH = 6

.5868/1-01

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - PENDULUM

LEAD CASE PARAMETERS

SUBANALYSIS TYPE = DEAD

SOLUTION DATA RESET VMK

OUTPUT DATA SELECTIONS

STEP NUMBER INTERVAL = 500

PARAMETER INTERVAL = 0.

DEBUG OUTPUT FLAG = 0

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SEADYN-- STADYN FREE BODY - TEST CASE NO. 3 - PENDULUM

SOLUTION OPTION SUPPLY

ANALYSIS TYPE = DEAD
SOLUTION FORM = VRK

NO. OF STATIC STEPS = 1
OUTPUT INTERVAL = 500
DEBUG PRINT CODE = 0
RESTART FILE FLAG = 0
UPDATE OPTION = 1
START UP OPTION = 0
NO. OF POINT LOADS = 0
FLOW FIELD NUMBER = 0

VISCOUS RELAXATION SOLUTION PARAMETERS

INTEGRATION PARAMETER = .10000E+01
INITIAL STEP SIZE = .10000E+01
INITIAL DAMPING = .10000E-02
ITERATION LIMIT = 200

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06-1000945 - I
78015041 178

10-150274-01

INDEX	X	Y
1	6.	0.
2	0.	-0.499517E+02

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SEADYN-- SHADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

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LOAD CASE PARAMETERS

SUBANALYSIS TYPE - LIVE

SOLUTION DATA RESET MM
STATIC STEP DATA
NUMBER OF STEPS = 5
START UP OPTION = 5
HEADING INCREMENT = 0.
TOTAL HEADING CHANGE = 0.
POINT LOADS DATA
LOAD SET LOAD COMPONENTS
1 --8000E+04 0.
LOAD SET VARIATION CODES
SET 1 - 1
SET 2 - 0
SET 3 - 0
GRAVITY = 0
CURRENT FIELD DATA
FLUX FIELD NUMBER = 1
FLUX FIELD MULTIPLIER = -10000E+01
FLUX VARIATION CODE = 0
OUTPUT DATA SELECTIONS
STEP NUMBER INTERVAL = 500
PARAMETER INTERVAL = 0.
DEBUG OUTPUT FLAG = 0

BEGIN END INC
2 2 1

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 1 - PENDULUM

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SOLUTION OPTION SUMMARY

ANALYSIS TYPE - LINE
SOLUTION FORM - MEK

NO. OF STATIC STEPS = 5
OUTPUT INTERVAL = 500
DEBUG PRINT CODE = 0
RESTART FILE FLAG = 0
UPDATE OPTION = 1
START UP OPTION = 5
NO. OF POINT LOADS = 1
FLUX FIELD NUMBER = 1

MODIFIED NEWTON-RAPHSON SOLUTION PARAMETERS

STEP SIZE CONTROL NO. = 2
ITERATION LIMIT = 200
NO. OF CONV. TRIALS = 3
MNR UPDATE INTERVAL = 205
NUMERICAL DAMPING = 0.
RESIDUAL ERROR TOLERANCE = .10000E-02
DEFLECT. ERROR TOLERANCE = .10000E-02
1-D SEARCH FACTOR = 0.
EXTRAPOLATION PARAMETER = .50000E+00

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1
TENSION
- 163017.00'

1
 2
 0.0
 0.0

ITERATIONS TO MINIMIZE

STEADY STATE INCREMENT	%	LOAD FACTOR	.10000E+01
------------------------	---	-------------	------------

4004 x
1 0.
2 - .113160

INFORMATION FOR READING

440 2242745 1
M114M 11 177

SLADYN-- SLADYN FREE FORM - TEST CASE NO. 3 - PENDULUM

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LOAD CASE PARAMETERS

SUBANALYSIS TYPE = DYN

CURRENT FIELD DATA

FLOW FIELD NUMBER = 1
FLOW FIELD MULTIPLIER = .10000E+01
FLOW VARIATION CODE = 0

TIME STEP DATA

INITIAL TIME STEP = .50000E-02
MAXIMUM TIME = .20000E+02
BEGINNING TIME = 0.
UPDATE TIME = .50000E-02
ALPHA*BETA*GAMMA = 0.

POINT LOADS DATA

LOAD SET 1
LOAD COMPONENTS
1 -1.0000E+04 0.
2 .20000E+01
3 .8333E-01
4 .50000E+00
BEGIN END INC.
2 2 1

LOAD SET VARIATION CODES

SET 1 = 1
SET 2 = 0
SET 3 = 0
GRAVITY = 0

OUTPUT DATA SELECTIONS

STEP NUMBER INTERVAL = 200
PARAMETER INTERVAL = 0.
DEBUG OUTPUT FLAG = 0

SEADYN-- SEADYN PREL FORM - TEST CASE NO. 3 - PERIODIC

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SOLUTION OUTPUT SUMMARY

ANALYSIS TYPE = DYN
SOLUTION FORM = DIM

DYN. INIT. COND. CODE = 0
OUTPUT INTERVAL = 200
DYNAMIC PRINT CODE = 0
RESTART FILE FLAG = 0
UPDATE OPTION = 1
START UP OPTION = 0
NO. OF POINT LOADS = 1
FLUX FIELD NUMBER = 1

DIRECT ITERATION METHOD DYNAMIC PARAMETERS
DEFLECT. ERROR TOLERANCE = .10000E-02

ELEMENT	EA	UNIT MASS	LENGTH	TIME STEP
1	.240000E+06	.371460E+00	.501010E+02	.576197E-01

TIME STEP DATA

INITIAL TIME STEP = .50000E-02
MAXIMUM TIME = .20000E+02
BEGINNING TIME = 0.
UPDATE TIME = .50000E-02
ALPHA,BETA,GAMMA = 0.

.83333E-01 .50000E+00

STEADY- STATE FUEL PUMP - TEST CASE NO. 3 - PENDULUM

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OUTPUT TIME INTERVAL = .100000E+01

TIME = 0. DYNAMIC INCREMENT = 0

MODE	X	Y	Z	VX	VY	VZ	ELT	ELMATION
1	0.	0.	0.	0.	0.	0.	1	.152252E+02
2	-.113760E+02	-.487922E+02	0.	0.	0.	0.		

NUMBER OF ITERATIONS 0

TIME = .100000E+01 DYNAMIC INCREMENT = 200

MODE	X	Y	Z	VX	VY	VZ	ELT	ELMATION
1	0.	0.	0.	0.	0.	0.	1	.129388E+02
2	-.896184E+01	-.489165E+02	.271178E-03	.694648E+01	-.522735E+00	-.917274E-04		

NUMBER OF ITERATIONS 3

TIME = .200000E+01 DYNAMIC INCREMENT = 400

MODE	X	Y	Z	VX	VY	VZ	ELT	ELMATION
1	0.	0.	0.	0.	0.	0.	1	.160873E+02
2	-.117361E+01	-.502459E+02	.180930E-03	.102711E+02	-.147736E+01	-.309332E-03		

NUMBER OF ITERATIONS 3

TIME = .300000E+01 DYNAMIC INCREMENT = 600

MODE	X	Y	Z	VX	VY	VZ	ELT	ELMATION
1	0.	0.	0.	0.	0.	0.	1	.137985E+02
2	.725853E+01	-.504678E+02	.252215E-03	.802720E+01	.128189E+01	-.540817E-03		

NUMBER OF ITERATIONS 3

TIME = .400000E+01 DYNAMIC INCREMENT = 800

MODE	X	Y	Z	VX	VY	VZ	ELT	ELMATION
1	0.	0.	0.	0.	0.	0.	1	.112146E+02
2	.109923E+02	-.482123E+02	-.410587E-04	.161918E+01	.210279E+01	-.617170E-03		

NUMBER OF ITERATIONS 3

SEADYN-- SEADYN FILE FORM - TEST CASE NO. 3 - PENDULUM

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TIME = .1000E+02 DYNAMIC INCREMENT = 2000

NODE	X	Y	Z	VX	VY	VZ	TENSION
1	0.	0.	0.	0.	0.	0.	0.000000E+00
2	-.134920E+01	-.510498E+02	-.404747E-03	-.100912E+02	-.805667E+00	-.421550E-03	-.361369E+00

NUMBER OF ITERATIONS 3

TIME = .11000E+02 DYNAMIC INCREMENT = 2200

NODE	X	Y	Z	VX	VY	VZ	TENSION
1	0.	0.	0.	0.	0.	0.	0.000000E+00
2	-.700789E+01	-.490922E+02	-.168964E-03	-.816843E+01	-.205919E+01	-.624698E-03	-.320742E+00

NUMBER OF ITERATIONS 3

TIME = .12000E+02 DYNAMIC INCREMENT = 2400

NODE	X	Y	Z	VX	VY	VZ	TENSION
1	0.	0.	0.	0.	0.	0.	0.000000E+00
2	-.113126E+02	-.485974E+02	-.170167E-03	-.237151E+01	-.871930E+00	-.621619E-03	-.339620E+00

NUMBER OF ITERATIONS 3

TIME = .13000E+02 DYNAMIC INCREMENT = 2600

NODE	X	Y	Z	VX	VY	VZ	TENSION
1	0.	0.	0.	0.	0.	0.	0.000000E+00
2	-.880524E+01	-.493281E+02	-.403087E-03	-.470686E+01	-.400214E+00	-.421531E-03	-.352668E+00

NUMBER OF ITERATIONS 3

TIME = .14000E+02 DYNAMIC INCREMENT = 2800

NODE	X	Y	Z	VX	VY	VZ	TENSION
1	0.	0.	0.	0.	0.	0.	0.000000E+00
2	-.820420E+00	-.499310E+02	-.387258E-03	-.795419E+01	-.966902E+00	-.155802E-03	-.362151E+00

NUMBER OF ITERATIONS 3

STEADY-- STADYN FILE FURT - LIST CASE NO. 3 - PENDULUM

TIME = .20000E+02 DYNAMIC INCREMENT = 4000

MODE	X	Y	Z	VX	VY	VZ	LLI	TENSION
1	0.	0.	0.	0.	0.	0.	1	.200019E+03
2	.106525E+02	-.475101E+02	-.258019E-03	.176516E+01	.240406E+00	-.243606E-03		

NUMBER OF ITERATIONS 3

TIME = .20000E+02 DYNAMIC INCREMENT = 4001

MODE	X	Y	Z	VX	VY	VZ	LLI	TENSION
1	0.	0.	0.	0.	0.	0.	1	.200019E+03
2	.106525E+02	-.475101E+02	-.258019E-03	.176516E+01	.240406E+00	-.243606E-03		

NUMBER OF ITERATIONS 3

SEADYN-- FREE FORMAT TEST CASE - CABLE LAYING

DATA PROBLEM DATA

NUMBER OF NODES	7	PHASE	648
NUMBER OF ELEMENTS	6		
GRAVITY DIRECTION	-2		
DYNAMIC OPTION FLAG	1		
INPUT ECHO FLAG	1		
DRAG MODEL OVERRIDE	0		
SHIP LOAD FILE FLAG	0		

GRAVITATIONAL ACCELERATION = .321700E+02

SEALYN-- FREE FUMPF TEST CASE - CABLE LAYING

FLUID MEDIA DEFINITIONS

	INTERFACE DEPTH	KINEMATIC VISCOSITY	SPECIFIC WEIGHT
1	.12000E+04	.17700E-04	.64000E+02
2	.20000E+04	.16800E-03	.76500E-01

SLABIN-- FREE FORMAT TEST CASE - CARLE LAYING

SOLY LOCATION DATA

BEGIN	END	INCH	MM	NO.	LIMIT SET
2	5	1	1	1	1

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SEADYN-- FREE FORMAT TEST CASE - CABLE LAYING

BODY DATA TABLE

BODY NO.	GRA. FN. NO.	BUOYANCY	DIA. (IN)	LENGTH	ADDED MASS CUFF	WIND DRAG CUFF	SUR. COR. DRAG	SUM OF INERTIA	MLD
1	0	-.10000E+03	.40000E+01	0.	.10000E+01	0.	0.	0.	1

F/G 13/13

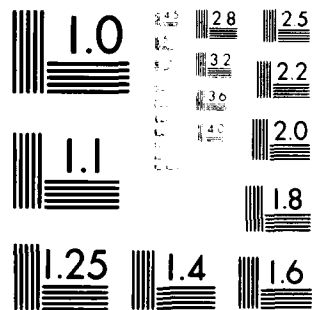
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MICROCOPY RESOLUTION TEST CHART
 NATIONAL BUREAU OF STANDARDS-1963-A

SEADTA-- PHEL FORMAT TEST CASE - CABLE LAYING

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ELEMENT INPUT DATA

EL	N1	N2	N3	MAT	KOMP	FLAG	TENSION	LENGTH	MEDIUM
1	1	2	0	1	0	-1	0.	0.	1
2	2	3	0	1	0	-1	0.	0.	1
3	3	4	0	2	0	-1	0.	0.	1
4	4	5	0	1	0	-1	0.	0.	1
6	6	7	0	1	0	-1	0.	0.	1

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SEACTN-- FREE FORMAT TEST CASE - CABLE LAYING

NODE LIMIT SET DATA

SET NO.	VERTICAL COORD	TOLERANCE	RELEASE FACTOR	FIXITY CODE
1	0.	.10000E+01	.10010E+01	1

CABLE MATERIAL PROPERTY DATA

PROPERTY SET NO. = 1

DRAG COEF. NO. = 0

DIAMETER = .250000E+00

WEIGHT PER UNIT LENGTH = .137000E+02

ADDED MASS COEFFICIENT = .100000E+01

REFERENCE MEDIUM CODE = 1

ULTIMATE TENSION = 0.

MASS PER UNIT LENGTH = .523519E+00

NO. OF POINTS ON TENSION/STRAIN CURVE = 0

EXPONENT FOUR COEFFICIENTS .50000E+07 .10000E+01

PROPERTY SET NO. = 2

DRAG COEF. NO. = 0

DIAMETER = .250000E+00

WEIGHT PER UNIT LENGTH = .137000E+02

ADDED MASS COEFFICIENT = .100000E+01

REFERENCE MEDIUM CODE = 1

ULTIMATE TENSION = 0.

MASS PER UNIT LENGTH = .523519E+00

NO. OF POINTS ON TENSION/STRAIN CURVE = 3

1 TENSION STRAIN EA

1 .140000E+05 .140000E-02 .100000E+08

2 .100000E+05 .300000E-02 .125000E+07

3 0. .533333E+07

MATERIAL DAMPING PARAMETERS(CAL.EAL) .100000E+02 0.

SEADYN-- FREE FORMAT TEST CASE - CABLE LAYING

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NUCE DATA

NUCE	CUDA	A	Y	Z	CONSTRAINTS
1	0	0.	0.	0.	1
5	0	-.14000E+04	.12000E+04	0.	2
6	0	-.14000E+04	.12000E+04	0.	2
7	0	-.14000E+04	.12000E+04	0.	1

SEADYN-- FILE FORMAT TEST CASE - CABLE LAYING

GENERATION OF LINES OF NODES		B.C.		FIRST NODE		CODE	
NUMBER	BEGIN NODE	END NODE	DIFFERENCE	0	2	1	
3	1	5	1	0	2	1	
6.SPAN, YSPAN	.715331+03	.140000+04	.120000+04				

THE FOLLOWING ELEMENTS HAVE ZERO LENGTH.
 AN ERROR MAY BE INDICATED IF THESE ARE NOT FOR PAYOUT.

SEADYN-- FREE FORMAT TEST CASE - CABLE LAYING

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NODE POINT DATA SUMMARY

NODE NO.	INITIAL COORDINATES			FIXITY CODES			LIMIT			BODY NO.	GRAVITY LOADS			VIRTUAL MASSES		
	X	Y	Z	X	Y	Z	X	Y	Z		X	Y	Z	X	Y	Z
1	0.	0.	0.	1	1	1	1	0	0	0	-1.3404E+04	0.	0.	-1.5441E+03	-1.5441E+03	-1.5441E+03
2	-1.4943E+03	.5093E+02	0.	0	0	0	0	1	1	0.	-1.6904E+04	0.	0.	-1.5441E+03	-1.5441E+03	-1.5441E+03
3	-1.8981E+03	.3196E+03	0.	0	0	0	0	1	1	0.	-1.6922E+04	0.	0.	-1.5441E+03	-1.5441E+03	-1.5441E+03
4	-1.198E+04	.7475E+03	0.	0	0	0	0	1	1	0.	-1.6949E+04	0.	0.	-1.5441E+03	-1.5441E+03	-1.5441E+03
5	-1.1400E+04	.1200E+04	0.	2	2	1	1	1	1	0.	-1.3527E+04	0.	0.	-1.5441E+03	-1.5441E+03	-1.5441E+03
6	-1.1400E+04	.1200E+04	0.	2	2	1	1	0	0	0.	0.	0.	0.	0.	0.	0.
7	-1.1400E+04	.1200E+04	0.	1	1	1	1	0	0	0.	0.	0.	0.	0.	0.	0.

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SEADYN-- FUEL FORMAT TEST CASE - CASEL LAYING

ELEMENT SUMMARY DATA

ELEM CONNECTION DATA				MAT CODE		INITIAL TENSION	UNSTRETCHED LENGTH	INITIAL LENGTH	RESIDUAL MASS
NO.	N1	N2	N3	NJ.	CD.				
1	1	2		1	0	1	0.	0.	0.
2	2	3		1	0	1	0.	0.	0.
3	3	4		2	0	1	0.	0.	0.
4	4	5		1	0	1	0.	0.	0.
5	5	6		1	0	1	0.	0.	0.
6	6	7		1	0	1	0.	0.	0.

SEADYN-- FREE FORMAT TEST CASE - CABLE LAYING

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ADDITIONAL ELEMENT DATA

ELEMENT	SLOPES	TRANSIT TIME (APPROX)
1	-.99474E+00	.10247E+00
2	-.81343E+00	.58167E+00
3	-.57714E+00	.81661E+00
4	-.42693E+00	.90429E+00
5	.10000E+01	0.
6	.10000E+01	0.

HALF-BANDWIDTH = 6

SEADYN-- FREE FORMAT TEST CASE - CARLIER LAYING

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LOAD CASE PARAMETERS

SUBANALYSIS TYPE = DEAD

OUTPUT DATA SELECTIONS

STEP NUMBER INTERVAL = 10

PARAMETER INTERVAL = 0

DEBUG OUTPUT FLAG = 0

SOLUTION DATA RESET VAX

STEADY-- FILE FORMAT TEST CASE - CABLE LAYING

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SOLUTION OPTION SUMMARY

ANALYSIS TYPE = DEAD
SOLUTION FUNK = VNR

NO. OF STATIC STEPS = 1
OUTPUT INTERVAL = 10
DEBUG PRINT CODE = 0
RESTART FILE FLAG = 0
UPDATE OPTION = 1
START UP OPTION = 0
NO. OF POINT LOADS = 0
FLOW FIELD NUMBER = 0

VISCOUS RELAXATION SOLUTION PARAMETERS
INTEGRATION PARAMETER = .10000E+01
INITIAL STEP SIZE = .10000E+01
INITIAL DAMPING = .10000E+00
ITERATION LIMIT = 200

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DEAD LOAD INCREMENT = 0 LOAD FACTOR 0.

NODE	X	Y	Z	VX	VY	VZ	TENSION
1	0.	0.	0.	0.	0.	0.	0.
2	-.444347E+03	.509251E+02	0.	0.	0.	0.	0.
3	-.844805E+03	.334606E+03	0.	0.	0.	0.	0.
4	-.118639E+04	.747545E+03	0.	0.	0.	0.	0.
5	-.140000E+04	.120000E+04	0.	0.	0.	0.	0.
6	-.140000E+04	.120000E+04	0.	0.	0.	0.	0.
7	-.140000E+04	.120000E+04	0.	0.	0.	0.	0.

SLUR CONVERGENCE UN STEP 5

LAST FOUR VELOCITY NORMS .456538E+00 .535436E+00 .183949E+00 .153284E+00

LAST RESIDUAL NORMS .774062E+03 .101738E+04 .548424E+02

NEW DAMPING .60000E-01

NEW DAMPING .48000E-04

DEAD LOAD INCREMENT = 34 LOAD FACTOR .10000E+01

NODE	X	Y	Z	VX	VY	VZ	TENSION
1	0.	0.	0.	0.	0.	0.	0.
2	-.446505E+03	.384011E+02	0.	0.	0.	0.	.103240E+05
3	-.844443E+03	.336440E+03	0.	0.	0.	0.	.128551E+05
4	-.118348E+04	.746284E+03	0.	0.	0.	0.	.178817E+05
5	-.140000E+04	.120000E+04	0.	0.	0.	0.	.239012E+05
6	-.140000E+04	.120000E+04	0.	0.	0.	0.	0.
7	-.140000E+04	.120000E+04	0.	0.	0.	0.	0.

STADYN-- FREE FORMAT TEST CASE - CABLE LAYING

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L G A U C A S E P A R A M E T E R S

SUBANALYSIS TYPE = DYN

SOLUTION DATA MESH

NODE	COMPONENT	MOVEMENT DATA	DIM
5	2	0	0
6	2	0	0
7	2	0	0

PAYOUT/REEL-IN DATA

NODE	ELT	MATE	MITOSIS LENGTH	GROW NO.	SHRINK NO.	ELT. INCR.	TIME IN. NO.
5	4	-.20000E+01	.60000E+02	2	0	1	0

TIME STEP DATA

INITIAL TIME STEP	-.10000E+00
MAXIMUM TIME	-.40000E+02
BEGINNING TIME	0.
UPDATE TIME	-.10000E+00
ALPHA, BETA, GAMMA	0.

OUTPUT DATA SELECTIONS

STEP NUMBER INTERVAL	10
PARAMETER INTERVAL	-.10000E+01
DEBUG OUTPUT FLAG	0

.83333E-01 .50000E+00

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SEADYN-- FREE FORMAT TEST CASE - CABLE LAYING

SOLUTION OPTION SUMMARY

ANALYSIS TYPE = DYN
SOLUTION FORM = DIM

DYN. INIT. COND. CODE = 0
OUTPUT INTERVAL = 10
DEBUG PRINT CODE = 0
RESTART FILE FLAG = 0
UPDATE OPTION = 1
START UP OPTION = 0
NO. OF POINT LOADS = 0
FLOW FIELD NUMBER = 0
NUMBER OF PAYOUT ENDS = 1
NUMBER OF MOVED NODES = 3

DIRECT ITERATION METHOD DYNAMIC PARAMETERS
DEFLECT. ERROR TOLERANCE = .10000E-02

ELEMENT	EA	UNIT MASS	LENGTH	TIME STEP
1	.50000E+07	.52244E+00	.49798E+03	.15919E+00
2	.50000E+07	.52217E+00	.49757E+03	.15897E+00
3	.53333E+07	.52176E+00	.50122E+03	.15493E+00
4	.50000E+07	.52102E+00	.50273E+03	.16027E+00

TIME STEP DATA

INITIAL TIME STEP = .10000E+00
MAXIMUM TIME = .40000E+02
BEGINNING TIME = 0.
UPDATE TIME = .10000E+00
ALPHA+META+GAMMA = 0.
-03333E-01 .50000E+00

SEADYN-- FREE FORMAT TEST CASE - CABLE LAYING

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OUTPUT TIME INTERVAL = .100000E+01

TIME = 0. DYNAMIC INCREMENT = 0

NODE	X	Y	Z	VX	VY	VZ	ELLI	FUNCTION
1	0.	0.	0.	0.	0.	0.	1	10.12461E+03
2	-.496505E+03	.384011E+02	0.	0.	0.	0.	2	1.202511E+03
3	-.894943E+03	.336440E+03	0.	0.	0.	0.	3	1.106111E+03
4	-.118348E+04	.746284E+03	0.	0.	0.	0.	4	2.390121E+03
5	-.140000E+04	.120000E+04	0.	0.	0.	0.	5	0.
6	-.140000E+04	.120000E+04	0.	0.	0.	0.	6	0.
7	-.140000E+04	.120000E+04	0.	0.	0.	0.	7	0.

NUMBER OF ITERATIONS 0

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .200000E+01 .506345E+03 .502731E+03

TIME = .100000E+01 DYNAMIC INCREMENT = 10

NODE	X	Y	Z	VX	VY	VZ	ELLI	FUNCTION
1	0.	0.	0.	0.	0.	0.	1	7.385341E+03
2	-.496216E+03	.380405E+02	0.	0.	0.	0.	2	1.077601E+03
3	-.894666E+03	.335746E+03	0.	0.	0.	0.	3	1.532621E+03
4	-.118323E+04	.745270E+03	0.	0.	0.	0.	4	2.222764E+03
5	-.140190E+04	.120000E+04	0.	0.	0.	0.	5	0.
6	-.140190E+04	.120000E+04	0.	0.	0.	0.	6	0.
7	-.140190E+04	.120000E+04	0.	0.	0.	0.	7	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .200000E+01 .502345E+03 .504573E+03

TIME = .200000E+01 DYNAMIC INCREMENT = 70

NODE	X	Y	Z	VX	VY	VZ	ELLI	FUNCTION
1	0.	0.	0.	0.	0.	0.	1	10.23391E+03
2	-.496666E+03	.361366E+02	0.	0.	0.	0.	2	1.202461E+03
3	-.894973E+03	.334214E+03	0.	0.	0.	0.	3	1.651131E+03
4	-.118355E+04	.743878E+03	0.	0.	0.	0.	4	2.201391E+03
5	-.140390E+04	.120000E+04	0.	0.	0.	0.	5	0.
6	-.140390E+04	.120000E+04	0.	0.	0.	0.	6	0.
7	-.140390E+04	.120000E+04	0.	0.	0.	0.	7	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .200000E+01 .504345E+03 .506561E+03

STADYN-- FREE FORMAT TEST CASE - CABLE LAYING

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TIME = .30000E+01 DYNAMIC INCREMENT = 30

NODE	X	Y	Z	VX	VY	VZ	ITERATION
1	0.	0.	0.	0.	0.	0.	1
2	-.496798E+03	.342883E+02	0.	-.162405E+00	0.	0.	2
3	-.895135E+03	.332436E+03	0.	-.639653E+00	-.994664E+00	0.	3
4	-.118333E+04	.742161E+03	0.	-.462597E+00	-.128809E+01	0.	4
5	-.140590E+04	.120000E+04	0.	-.112750E+01	-.179658E+01	0.	5
6	-.140590E+04	.120000E+04	0.	-.200000E+01	0.	0.	6
7	-.140590E+04	.120000E+04	0.	-.200000E+01	0.	0.	7

NUMBER OF ITERATIONS 7

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .200000E+01 .506345E+03 .508809E+03

TIME = .40000E+01 DYNAMIC INCREMENT = 40

NODE	X	Y	Z	VX	VY	VZ	ITERATION
1	0.	0.	0.	0.	0.	0.	1
2	-.496798E+03	.332625E+02	0.	-.243664E+00	0.	0.	2
3	-.895271E+03	.331275E+03	0.	-.370453E+00	-.144208E+01	0.	3
4	-.118434E+04	.740766E+03	0.	-.432898E+00	-.140193E+01	0.	4
5	-.140790E+04	.120000E+04	0.	-.112459E+01	-.179824E+01	0.	5
6	-.140790E+04	.120000E+04	0.	-.200000E+01	0.	0.	6
7	-.140790E+04	.120000E+04	0.	-.200000E+01	0.	0.	7

NUMBER OF ITERATIONS 7

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .200000E+01 .508345E+03 .510760E+03

TIME = .50000E+01 DYNAMIC INCREMENT = 50

NODE	X	Y	Z	VX	VY	VZ	ITERATION
1	0.	0.	0.	0.	0.	0.	1
2	-.496913E+03	.324425E+02	0.	-.101418E+00	-.977757E+00	0.	2
3	-.895468E+03	.330276E+03	0.	-.404433E+00	-.937186E+00	0.	3
4	-.118485E+04	.739449E+03	0.	-.458223E+00	-.164268E+01	0.	4
5	-.140990E+04	.120000E+04	0.	-.112193E+01	-.179694E+01	0.	5
6	-.140990E+04	.120000E+04	0.	-.200000E+01	0.	0.	6
7	-.140990E+04	.120000E+04	0.	-.200000E+01	0.	0.	7

NUMBER OF ITERATIONS 7

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .200000E+01 .510345E+03 .512595E+03

STADYN-- FREE FORMAT TEST CASE - CABLE LAYING

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TIME - .60000E+01 DYNAMIC INCREMENT - 60

NODE	X	Y	Z	VX	VY	VZ	EXTENSION
1	0.	0.	0.	0.	0.	0.	1
2	-.498855E+03	.313387E+02	0.	-.569794E+00	-.118340E+01	0.	2
3	-.895605E+03	.328855E+03	0.	-.220825E+00	-.145214E+01	0.	3
4	-.118541E+04	.737728E+03	0.	-.700958E+00	-.154348E+01	0.	4
5	-.141190E+04	.120000E+04	0.	-.112003E+01	-.174602E+01	0.	5
6	-.141190E+04	.120000E+04	0.	-.200000E+01	0.	0.	6
7	-.141190E+04	.120000E+04	0.	-.200000E+01	0.	0.	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .200000E+01 .512345E+03 .514774E+03

TIME - .70000E+01 DYNAMIC INCREMENT - 70

NODE	X	Y	Z	VX	VY	VZ	EXTENSION
1	0.	0.	0.	0.	0.	0.	1
2	-.497077E+03	.301343E+02	0.	.119249E+00	-.102444E+01	0.	2
3	-.895939E+03	.327496E+03	0.	-.173640E+00	-.142155E+01	0.	3
4	-.118612E+04	.736157E+03	0.	-.426151E+00	-.209094E+01	0.	4
5	-.141390E+04	.120000E+04	0.	-.118442E+01	-.179522E+01	0.	5
6	-.141390E+04	.120000E+04	0.	-.200000E+01	0.	0.	6
7	-.141390E+04	.120000E+04	0.	-.200000E+01	0.	0.	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .200000E+01 .514345E+03 .516753E+03

TIME - .80000E+01 DYNAMIC INCREMENT - 80

NODE	X	Y	Z	VX	VY	VZ	EXTENSION
1	0.	0.	0.	0.	0.	0.	1
2	-.497157E+03	.291288E+02	0.	-.429864E+00	-.844794E+00	0.	2
3	-.896265E+03	.326241E+03	0.	-.330496E+00	-.120523E+01	0.	3
4	-.118678E+04	.734560E+03	0.	-.774150E+00	-.138689E+01	0.	4
5	-.141590E+04	.120000E+04	0.	-.111670E+01	-.179438E+01	0.	5
6	-.141590E+04	.120000E+04	0.	-.200000E+01	0.	0.	6
7	-.141590E+04	.120000E+04	0.	-.200000E+01	0.	0.	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .200000E+01 .516345E+03 .518776E+03

SLABYK-- PILE FORMAT TEST CASE - CABLE LAYING

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TIME = .00000E+01 DYNAMIC INCREMENT = 90

NODE	X	Y	Z	VX	VY	VZ	ELI	TENSION
1	0.	0.	0.	0.	0.	0.	1	0.
2	-.492110E+03	-.283042E+02	0.	0.	0.	0.	2	0.
3	-.896662E+03	-.324888E+03	0.	0.	0.	0.	3	0.
4	-.118747E+04	-.732924E+03	0.	0.	0.	0.	4	0.
5	-.141790E+04	-.120000E+04	0.	0.	0.	0.	5	0.
6	-.141790E+04	-.120000E+04	0.	0.	0.	0.	6	0.
7	-.141790E+04	-.120000E+04	0.	0.	0.	0.	7	0.

NUMBER OF ITERATIONS 2

PAYOFF STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .200000E+01 .518345E+03 .520823E+03

TIME = .10000E+02 DYNAMIC INCREMENT = 100

NODE	X	Y	Z	VX	VY	VZ	ELI	TENSION
1	0.	0.	0.	0.	0.	0.	1	0.
2	-.492237E+03	-.27318E+02	0.	0.	0.	0.	2	0.
3	-.896935E+03	-.323639E+03	0.	0.	0.	0.	3	0.
4	-.118823E+04	-.731363E+03	0.	0.	0.	0.	4	0.
5	-.141990E+04	-.120000E+04	0.	0.	0.	0.	5	0.
6	-.141990E+04	-.120000E+04	0.	0.	0.	0.	6	0.
7	-.141990E+04	-.120000E+04	0.	0.	0.	0.	7	0.

NUMBER OF ITERATIONS 2

PAYOFF STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .200000E+01 .520345E+03 .522767E+03

TIME = .11000E+02 DYNAMIC INCREMENT = 110

NODE	X	Y	Z	VX	VY	VZ	ELI	TENSION
1	0.	0.	0.	0.	0.	0.	1	0.
2	-.497269E+03	-.263771E+02	0.	0.	0.	0.	2	0.
3	-.897252E+03	-.322189E+03	0.	0.	0.	0.	3	0.
4	-.118903E+04	-.724723E+03	0.	0.	0.	0.	4	0.
5	-.142190E+04	-.120000E+04	0.	0.	0.	0.	5	0.
6	-.142190E+04	-.120000E+04	0.	0.	0.	0.	6	0.
7	-.142190E+04	-.120000E+04	0.	0.	0.	0.	7	0.

NUMBER OF ITERATIONS 2

PAYOFF STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .200000E+01 .522345E+03 .524776E+03

SLAD78-- FILE FORMAT TEST CASE - CABLE LAYING

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TIME = .12000E+02 DYNAMIC INCREMENT = 120

NODE	X	Y	Z	VX	VY	VZ	TENSION
1	0.	0.	0.	0.	0.	0.	0.
2	-.497229E+03	-.254785E+02	0.	-.227032E+00	-.480450E+00	0.	-.225162E+04
3	-.897642E+03	-.320836E+03	0.	-.291832E+00	-.146714E+01	0.	-.127236E+05
4	-.118978E+04	-.728034E+03	0.	-.811330E+00	-.160953E+01	0.	-.171448E+05
5	-.142390E+04	-.120000E+04	0.	-.111125E+01	-.174166E+01	0.	-.238574E+05
6	-.142390E+04	-.120000E+04	0.	-.200000E+01	0.	0.	0.
7	-.142390E+04	-.120000E+04	0.	-.200000E+01	0.	0.	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .200000E+01 .524345E+03 .528841E+03

TIME = .13000E+02 DYNAMIC INCREMENT = 130

NODE	X	Y	Z	VX	VY	VZ	TENSION
1	0.	0.	0.	0.	0.	0.	0.
2	-.497378E+03	-.246165E+02	0.	-.437435E+01	-.839381E+00	0.	-.101141E+05
3	-.898083E+03	-.319525E+03	0.	-.378572E+00	-.138882E+01	0.	-.124035E+05
4	-.119063E+04	-.726508E+03	0.	-.836522E+00	-.160376E+01	0.	-.178081E+05
5	-.142590E+04	-.120000E+04	0.	-.111005E+01	-.179109E+01	0.	-.226231E+05
6	-.142590E+04	-.120000E+04	0.	-.200000E+01	0.	0.	0.
7	-.142590E+04	-.120000E+04	0.	-.200000E+01	0.	0.	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .200000E+01 .526345E+03 .528721E+03

TIME = .14000E+02 DYNAMIC INCREMENT = 140

NODE	X	Y	Z	VX	VY	VZ	TENSION
1	0.	0.	0.	0.	0.	0.	0.
2	-.497115E+03	-.237675E+02	0.	-.216730E+00	-.913187E+00	0.	-.925950E+04
3	-.898468E+03	-.316131E+03	0.	-.582485E+00	-.121400E+01	0.	-.127986E+05
4	-.119140E+04	-.724767E+03	0.	-.825139E+00	-.160566E+01	0.	-.171670E+05
5	-.142790E+04	-.120000E+04	0.	-.110893E+01	-.179053E+01	0.	-.235714E+05
6	-.142790E+04	-.120000E+04	0.	-.200000E+01	0.	0.	0.
7	-.142790E+04	-.120000E+04	0.	-.200000E+01	0.	0.	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .200000E+01 .528345E+03 .530830E+03

SEADYN-- FREE FORMAT TEST CASE - CABLE LAYING

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TIME = .15000E+02 DYNAMIC INCREMENT = 150

NODE	X	Y	Z	VX	VY	VZ	ELT	TENSION
1	0.	0.	0.	0.	0.	0.	1	.77311E+04
2	-.49740E+03	.22922E+02	0.	-.38216E+01	0.	0.	2	.12110E+05
3	-.89880E+03	.31673E+03	0.	-.20554E+00	0.	0.	3	.17819E+05
4	-.11922E+04	.22313E+03	0.	-.73850E+00	0.	0.	4	.23257E+05
5	-.14299E+04	.12000E+04	0.	-.11078E+01	0.	0.	5	0.
6	-.14299E+04	.12000E+04	0.	-.20000E+01	0.	0.	6	0.
7	-.14299E+04	.12000E+04	0.	-.20000E+01	0.	0.		

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT.
1 5 4
VELOCITY UNSTR. LEN.
-20000E+01 .53034E+03
CURRENT LEN.
.53280E+03

TIME = .16000E+02 DYNAMIC INCREMENT = 160

NODE	X	Y	Z	VX	VY	VZ	ELT	TENSION
1	0.	0.	0.	0.	0.	0.	1	.10226E+05
2	-.49740E+03	.22058E+02	0.	-.20279E+00	0.	0.	2	.12787E+05
3	-.89937E+03	.31552E+03	0.	-.56668E+00	0.	0.	3	.16989E+05
4	-.11930E+04	.22167E+03	0.	-.74183E+00	0.	0.	4	.23256E+05
5	-.14319E+04	.12000E+04	0.	-.11068E+01	0.	0.	5	0.
6	-.14319E+04	.12000E+04	0.	-.20000E+01	0.	0.	6	0.
7	-.14319E+04	.12000E+04	0.	-.20000E+01	0.	0.		

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT.
1 5 4
VELOCITY UNSTR. LEN.
-20000E+01 .53234E+03
CURRENT LEN.
.53481E+03

TIME = .17000E+02 DYNAMIC INCREMENT = 170

NODE	X	Y	Z	VX	VY	VZ	ELT	TENSION
1	0.	0.	0.	0.	0.	0.	1	.77477E+04
2	-.49740E+03	.21278E+02	0.	-.29136E+00	0.	0.	2	.11790E+05
3	-.89922E+03	.31397E+03	0.	-.35877E+00	0.	0.	3	.17482E+05
4	-.11939E+04	.21976E+03	0.	-.84572E+00	0.	0.	4	.23176E+05
5	-.14339E+04	.12000E+04	0.	-.11058E+01	0.	0.	5	0.
6	-.14339E+04	.12000E+04	0.	-.20000E+01	0.	0.	6	0.
7	-.14339E+04	.12000E+04	0.	-.20000E+01	0.	0.		

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT.
1 5 4
VELOCITY UNSTR. LEN.
-20000E+01 .53434E+03
CURRENT LEN.
.53688E+03

SLAUDYN-- FREE FORMAT TEST CASE - CABLE LAYING

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TIME = .18000E+02 DYNAMIC INCREMENT = 180

NODE	X	Y	Z	VA	VY	VZ	ELT	FUNCTION
1	0.	0.	0.	0.	0.	0.	1	.1077251E+05
2	-.497563E+03	.208482E+02	0.	.148379E+00	-.797141E+03	0.	2	.123157E+05
3	-.900229E+03	.312658E+03	0.	-.444077E+00	-.131270E+01	0.	3	.168712E+05
4	-.119473E+04	.718118E+03	0.	-.712166E+00	-.191961E+01	0.	4	-.233367E+05
5	-.143590E+04	.120000E+04	0.	-.110489E+01	-.178851E+01	0.	5	0.
6	-.143590E+04	.120000E+04	0.	-.200000E+01	0.	0.	6	0.
7	-.143590E+04	.120000E+04	0.	-.200000E+01	0.	0.	7	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .20000E+01 .536345E+03 .538864E+03

TIME = .18000E+02 DYNAMIC INCREMENT = 180

NODE	X	Y	Z	VA	VY	VZ	ELT	FUNCTION
1	0.	0.	0.	0.	0.	0.	1	.103814E+05
2	-.497602E+03	.196366E+02	0.	-.234061E+00	-.810290E+00	0.	2	.120057E+05
3	-.900661E+03	.311262E+03	0.	-.442643E+00	-.140672E+01	0.	3	.171099E+05
4	-.119558E+04	.716450E+03	0.	-.984473E+00	-.143614E+01	0.	4	.215022E+05
5	-.143790E+04	.120000E+04	0.	-.110396E+01	-.178805E+01	0.	5	0.
6	-.143790E+04	.120000E+04	0.	-.200000E+01	0.	0.	6	0.
7	-.143790E+04	.120000E+04	0.	-.200000E+01	0.	0.	7	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .20000E+01 .538345E+03 .540870E+03

TIME = .20000E+02 DYNAMIC INCREMENT = 200

NODE	X	Y	Z	VA	VY	VZ	ELT	FUNCTION
1	0.	0.	0.	0.	0.	0.	1	.276106E+04
2	-.497577E+03	.188459E+02	0.	-.225037E+00	-.875065E+00	0.	2	.120132E+05
3	-.901079E+03	.309853E+03	0.	-.544307E+00	-.130890E+01	0.	3	.171779E+05
4	-.119642E+04	.714742E+03	0.	-.818523E+00	-.173028E+01	0.	4	.230508E+05
5	-.143990E+04	.120000E+04	0.	-.110306E+01	-.174760E+01	0.	5	0.
6	-.143990E+04	.120000E+04	0.	-.200000E+01	0.	0.	6	0.
7	-.143990E+04	.120000E+04	0.	-.200000E+01	0.	0.	7	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .20000E+01 .540345E+03 .542916E+03

SLACIN-- PHIL FIRMAN TEST CASE - CABLE LAYING

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TIME = .21000E+02 DYNAMIC INCREMENT = 210

NODE	X	Y	Z	VX	VY	VZ	ELT	TENSION
1	0.	0.	0.	0.	0.	0.	1	.102796E+05
2	-.497659E+03	.180302E+02	0.	.647859E-01	-.764480E+00	0.	2	.128878E+05
3	-.901585E+03	.308526E+03	0.	-.307079E+00	-.154634E+01	0.	3	.170696E+05
4	-.119730E+04	.713127E+03	0.	-.974493E+00	-.151115E+01	0.	4	.237514E+05
5	-.144190E+04	.120000E+04	0.	-.110217E+01	-.179715E+01	0.	5	0.
6	-.144190E+04	.120000E+04	0.	-.200000E+01	0.	0.	6	0.
7	-.144190E+04	.120000E+04	0.	-.200000E+01	0.	0.	7	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .20000E+01 .542345E+03 .544861E+03

TIME = .22000E+02 DYNAMIC INCREMENT = 220

NODE	X	Y	Z	VX	VY	VZ	ELT	TENSION
1	0.	0.	0.	0.	0.	0.	1	.781125E+04
2	-.497659E+03	.172528E+02	0.	.568798E-01	-.908191E+00	0.	2	.122300E+05
3	-.901585E+03	.307106E+03	0.	-.671790E+00	-.119217E+01	0.	3	.174997E+05
4	-.119816E+04	.711433E+03	0.	-.903236E+00	-.157385E+01	0.	4	.238267E+05
5	-.144390E+04	.120000E+04	0.	-.110130E+01	-.178671E+01	0.	5	0.
6	-.144390E+04	.120000E+04	0.	-.200000E+01	0.	0.	6	0.
7	-.144390E+04	.120000E+04	0.	-.200000E+01	0.	0.	7	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .20000E+01 .544345E+03 .546884E+03

TIME = .23000E+02 DYNAMIC INCREMENT = 230

NODE	X	Y	Z	VX	VY	VZ	ELT	TENSION
1	0.	0.	0.	0.	0.	0.	1	.962912E+04
2	-.497659E+03	.164654E+02	0.	.690623E-01	-.734930E+00	0.	2	.126280E+05
3	-.901585E+03	.305742E+03	0.	-.278550E+00	-.155702E+01	0.	3	.172241E+05
4	-.119902E+04	.709749E+03	0.	-.904305E+00	-.163873E+01	0.	4	.234924E+05
5	-.144590E+04	.120000E+04	0.	-.110045E+01	-.178628E+01	0.	5	0.
6	-.144590E+04	.120000E+04	0.	-.200000E+01	0.	0.	6	0.
7	-.144590E+04	.120000E+04	0.	-.200000E+01	0.	0.	7	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 5 4 .20000E+01 .546345E+03 .548906E+03

READY-- FREE FORMAT TEST CASE - CARLF LAYING

TIME - .25000E+02 DYNAMIC INCREMENT = 250

MODE	X	Y	Z
1	0.	0.	0.
2	-.497770E+03	.156792E+02	0.
3	-.902931E+03	.304375E+03	0.
4	-.119990E+04	.708120E+03	0.
5	-.144790E+04	.120000E+04	0.
6	-.144790E+04	.120000E+04	0.
7	-.144790E+04	.120000E+04	0.

NUMBER OF ITERATIONS 7

PAYOUT STATUS	VELOCITY	UNSTR. LEN.	CURRENT LEN.
END MODE	ELT.		
1	5	.200000E+01	.548345E+03
4			.550861E+03

TIME - .25000E+02 DYNAMIC INCREMENT = 250

MODE	X	Y	Z
1	0.	0.	0.
2	-.497770E+03	.149166E+02	0.
3	-.903364E+03	.302984E+03	0.
4	-.120074E+04	.706378E+03	0.
5	-.144990E+04	.120000E+04	0.
6	-.144990E+04	.120000E+04	0.
7	-.144990E+04	.120000E+04	0.

NUMBER OF ITERATIONS 7

PAYOUT STATUS	VELOCITY	UNSTR. LEN.	CURRENT LEN.
END MODE	ELT.		
1	5	.200000E+01	.550345E+03
4			.552942E+03

TIME - .26000E+02 DYNAMIC INCREMENT = 260

MODE	X	Y	Z
1	0.	0.	0.
2	-.497770E+03	.141541E+02	0.
3	-.903420E+03	.301612E+03	0.
4	-.120162E+04	.704738E+03	0.
5	-.145190E+04	.120000E+04	0.
6	-.145190E+04	.120000E+04	0.
7	-.145190E+04	.120000E+04	0.

NUMBER OF ITERATIONS 7

PAYOUT STATUS	VELOCITY	UNSTR. LEN.	CURRENT LEN.
END MODE	ELT.		
1	5	.200000E+01	.552345E+03
4			.554907E+03

TIME - .10000E+01 DYNAMIC INCREMENT = 10

MODE	X	Y	Z
1	0.	0.	0.
2	-.497770E+03	.156792E+02	0.
3	-.902931E+03	.304375E+03	0.
4	-.119990E+04	.708120E+03	0.
5	-.144790E+04	.120000E+04	0.
6	-.144790E+04	.120000E+04	0.
7	-.144790E+04	.120000E+04	0.

NUMBER OF ITERATIONS 7

PAYOUT STATUS	VELOCITY	UNSTR. LEN.	CURRENT LEN.
END MODE	ELT.		
1	5	.200000E+01	.548345E+03
4			.550861E+03

TIME - .10000E+01 DYNAMIC INCREMENT = 10

MODE	X	Y	Z
1	0.	0.	0.
2	-.497770E+03	.149166E+02	0.
3	-.903364E+03	.302984E+03	0.
4	-.120074E+04	.706378E+03	0.
5	-.144990E+04	.120000E+04	0.
6	-.144990E+04	.120000E+04	0.
7	-.144990E+04	.120000E+04	0.

NUMBER OF ITERATIONS 7

PAYOUT STATUS	VELOCITY	UNSTR. LEN.	CURRENT LEN.
END MODE	ELT.		
1	5	.200000E+01	.550345E+03
4			.552942E+03

TIME - .10000E+01 DYNAMIC INCREMENT = 10

MODE	X	Y	Z
1	0.	0.	0.
2	-.497770E+03	.141541E+02	0.
3	-.903420E+03	.301612E+03	0.
4	-.120162E+04	.704738E+03	0.
5	-.145190E+04	.120000E+04	0.
6	-.145190E+04	.120000E+04	0.
7	-.145190E+04	.120000E+04	0.

NUMBER OF ITERATIONS 7

PAYOUT STATUS	VELOCITY	UNSTR. LEN.	CURRENT LEN.
END MODE	ELT.		
1	5	.200000E+01	.552345E+03
4			.554907E+03

SEAUTN-- FREE FUMAT TEST CASE - CABLE LAYING

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TIME = .27000E+02 DYNAMIC INCREMENT = 270

NUDE	X	Y	Z
1	0.	0.	0.
2	-.497745E+03	.133604E+02	0.
3	-.904300E+03	.390265E+03	0.
4	-.120247E+04	.703033E+03	0.
5	-.145390E+04	.120000E+04	0.
6	-.145390E+04	.120000E+04	0.
7	-.145390E+04	.120000E+04	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS	END NUDE	ELT.	VELOCITY	UNSTR. LEN.	CURRENT LEN.
1	5	4	.200000E+01	.554345E+03	.554345E+03

TIME = .28000E+02 DYNAMIC INCREMENT = 280

NUDE	X	Y	Z
1	0.	0.	0.
2	-.497701E+03	.126463E+02	0.
3	-.904700E+03	.298845E+03	0.
4	-.120334E+04	.701338E+03	0.
5	-.145590E+04	.120000E+04	0.
6	-.145590E+04	.120000E+04	0.
7	-.145590E+04	.120000E+04	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS	END NUDE	ELT.	VELOCITY	UNSTR. LEN.	CURRENT LEN.
1	5	4	.200000E+01	.556345E+03	.556345E+03

TIME = .29000E+02 DYNAMIC INCREMENT = 290

NUDE	X	Y	Z
1	0.	0.	0.
2	-.497800E+03	.118702E+02	0.
3	-.905211E+03	.297524E+03	0.
4	-.120421E+04	.699673E+03	0.
5	-.145790E+04	.120000E+04	0.
6	-.145790E+04	.120000E+04	0.
7	-.145790E+04	.120000E+04	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS	END NUDE	ELT.	VELOCITY	UNSTR. LEN.	CURRENT LEN.
1	5	4	.200000E+01	.558345E+03	.558345E+03

NUDE	X	Y	Z
1	0.	0.	0.
2	-.497745E+03	.133604E+02	0.
3	-.904300E+03	.390265E+03	0.
4	-.120247E+04	.703033E+03	0.
5	-.145390E+04	.120000E+04	0.
6	-.145390E+04	.120000E+04	0.
7	-.145390E+04	.120000E+04	0.

NUDE	X	Y	Z
1	0.	0.	0.
2	-.497701E+03	.126463E+02	0.
3	-.904700E+03	.298845E+03	0.
4	-.120334E+04	.701338E+03	0.
5	-.145590E+04	.120000E+04	0.
6	-.145590E+04	.120000E+04	0.
7	-.145590E+04	.120000E+04	0.

NUDE	X	Y	Z
1	0.	0.	0.
2	-.497800E+03	.118702E+02	0.
3	-.905211E+03	.297524E+03	0.
4	-.120421E+04	.699673E+03	0.
5	-.145790E+04	.120000E+04	0.
6	-.145790E+04	.120000E+04	0.
7	-.145790E+04	.120000E+04	0.

SEADYN-- FILE FORMAT TEST CASE - CABLE LAYING

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TIME = .30000E+02 DYNAMIC INCREMENT = 300

NODE	X	Y	Z	VA	VY	VZ	UVT	TENSION
1	0.	0.	0.	0.	0.	0.	1	1.6510E
2	-497856E+03	-111339E+02	0.	-125589E+00	-759963E+00	0.	2	-102967E+00
3	-905620E+03	-296120E+03	0.	-447298E+00	-138896E+01	0.	3	-119275E+00
4	-120507E+04	-697986E+03	0.	-947673E+00	-153504E+01	0.	4	-172503E+00
5	-145990E+04	-120000E+04	0.	-109473E+01	-178339E+01	0.	5	-236517E+00
6	-145990E+04	-120000E+04	0.	-200000E+01	0.	0.	6	0.
7	-145990E+04	-120000E+04	0.	-200000E+01	0.	0.	6	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS	VELOCITY	UNSTR. LEN.	CURRENT LEN.
END NODE	ELT.		
1	5	4	.560345E+03
			.562988E+03

NEW PAYOUT/HEEL-IN DATA FOR END 1

MODE = 6
ELT. = 5
STEP 301 TIME .301000E+02

TIME = .31000E+02 DYNAMIC INCREMENT = 310

NODE	X	Y	Z	VA	VY	VZ	UVT	TENSION
1	0.	0.	0.	0.	0.	0.	1	1.01674E+00
2	-497864E+03	-103824E+02	0.	-212232E+00	-781706E+00	0.	2	-171574E+00
3	-906080E+03	-294761E+03	0.	-446549E+00	-139160E+01	0.	3	-170574E+00
4	-120583E+04	-696381E+03	0.	-767063E+00	-154158E+01	0.	4	-222871E+00
5	-145990E+04	-114394E+04	0.	-196817E+01	-432826E+01	0.	5	-356171E+00
6	-146190E+04	-120000E+04	0.	-113220E+01	-180192E+01	0.	6	0.
7	-146190E+04	-120000E+04	0.	-200000E+01	0.	0.	6	0.

NUMBER OF ITERATIONS 5

PAYOUT STATUS	VELOCITY	UNSTR. LEN.	CURRENT LEN.
END NODE	ELT.		
1	6	5	.618000E+02
			.622264E+02

STADYN-- FREE FORMAT TEST CASE - CABLE LAYING

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TIME = .32000E+02 DYNAMIC INCREMENT = 120

NODE	X	Y	Z	VX	VY	VZ	ITERSUN
1	0.	0.	0.	0.	0.	0.	1
2	-.497904E+03	.962602E+01	0.	.301593E+01	-.754032E+00	0.	1
3	-.906551E+03	.293424E+03	0.	-.425436E+00	-.138903E+01	0.	2
4	-.120656E+04	.694874E+03	0.	-.956170E+00	-.116790E+01	0.	3
5	-.163744E+04	.114154E+04	0.	-.120951E+01	-.418000E+01	0.	4
6	-.146390E+04	.120000E+04	0.	-.117522E+01	-.182201E+01	0.	5
7	-.146390E+04	.120000E+04	0.	-.200000E+01	0.	0.	6

NUMBER OF ITERATIONS 5

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 0 5 .20000E+02 .638000E+02 .641657E+02

TIME = .33000E+02 DYNAMIC INCREMENT = 330

NODE	X	Y	Z	VX	VY	VZ	ITERSUN
1	0.	0.	0.	0.	0.	0.	1
2	-.497859E+03	.893591E+01	0.	.146274E+00	-.765169E+00	0.	1
3	-.906457E+03	.292076E+03	0.	-.514937E+00	-.126505E+01	0.	2
4	-.120731E+04	.693266E+03	0.	-.919958E+00	-.138268E+01	0.	3
5	-.143917E+04	.113958E+04	0.	-.981126E+00	-.352457E+01	0.	4
6	-.146590E+04	.120000E+04	0.	-.119091E+01	-.182904E+01	0.	5
7	-.146590E+04	.120000E+04	0.	-.200000E+01	0.	0.	6

NUMBER OF ITERATIONS 5

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 6 5 .200000E+01 .658000E+02 .660637E+02

TIME = .34000E+02 DYNAMIC INCREMENT = 340

NODE	X	Y	Z	VX	VY	VZ	ITERSUN
1	0.	0.	0.	0.	0.	0.	1
2	-.497805E+03	.820894E+01	0.	.782872E+01	-.728714E+00	0.	1
3	-.907411E+03	.290783E+03	0.	-.317241E+00	-.147429E+01	0.	2
4	-.120814E+04	.691666E+03	0.	-.887340E+00	-.161146E+01	0.	3
5	-.144033E+04	.113785E+04	0.	-.946789E+00	-.18512E+01	0.	4
6	-.146790E+04	.120000E+04	0.	-.118885E+01	-.182813E+01	0.	5
7	-.146790E+04	.120000E+04	0.	-.200000E+01	0.	0.	6

NUMBER OF ITERATIONS 5

PAYOUT STATUS
END NODE ELT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 6 5 .200000E+01 .678000E+02 .679904E+02

STEADY-- FREE FORMAT TEST CASE - CABLE LAYING

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TIME = .35000E+02 DYNAMIC INCREMENT = 350

NODE	X	Y	Z	VX	VY	VZ	ELL	TENSION
1	0.	0.	0.	0.	0.	0.	1	12551.36
2	-.497890E+03	.741995E+01	0.	-.603345E-01	-.847147E+00	0.	1	-.994160E+04
3	-.907831E+03	.289377E+03	0.	-.548765E+00	-.125758E+01	0.	2	-.144856E+05
4	-.120899E+04	.689974E+03	0.	-.735690E+00	-.185524E+01	0.	3	-.171440E+05
5	-.144125E+04	.113601E+04	0.	-.176049E+01	-.953948E-01	0.	4	-.234852E+05
6	-.146990E+04	.120000E+04	0.	-.118273E+01	-.182540E+01	0.	5	-.219440E+05
7	-.146990E+04	.120000E+04	0.	-.200000E+01	0.	0.	6	0.

NUMBER OF ITERATIONS 5

PAYOUT STATUS
END NODE FLT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 6 5 .20000E+01 .698000E+02 .701057E+02

TIME = .36000E+02 DYNAMIC INCREMENT = 360

NODE	X	Y	Z	VX	VY	VZ	ELL	TENSION
1	0.	0.	0.	0.	0.	0.	1	12551.36
2	-.497890E+03	.661150E+01	0.	-.105850E+00	-.720063E+00	0.	1	-.985405E+04
3	-.908238E+03	.287995E+03	0.	-.336007E+00	-.140724E+01	0.	2	-.125107E+05
4	-.120982E+04	.688292E+03	0.	-.749960E+00	-.179750E+01	0.	3	-.167381E+05
5	-.144222E+04	.111404E+04	0.	-.147905E+01	-.101912E+01	0.	4	-.215754E+05
6	-.147190E+04	.120000E+04	0.	-.117935E+01	-.182388E+01	0.	5	-.306147E+05
7	-.147190E+04	.120000E+04	0.	-.200000E+01	0.	0.	6	0.

NUMBER OF ITERATIONS 5

PAYOUT STATUS
END NODE FLT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 6 5 .20000E+01 .718000E+02 .723234E+02

TIME = .37000E+02 DYNAMIC INCREMENT = 370

NODE	X	Y	Z	VX	VY	VZ	ELL	TENSION
1	0.	0.	0.	0.	0.	0.	1	12551.36
2	-.497955E+03	.588374E+01	0.	-.743051E-01	-.684816E+00	0.	1	-.103417E+05
3	-.908670E+03	.286675E+03	0.	-.405278E+00	-.130766E+01	0.	2	-.123547E+05
4	-.121065E+04	.686661E+03	0.	-.827308E+00	-.161048E+01	0.	3	-.171708E+05
5	-.144341E+04	.113231E+04	0.	-.419115E+00	-.348194E+01	0.	4	-.223594E+05
6	-.147390E+04	.120000E+04	0.	-.117868E+01	-.182358E+01	0.	5	-.276962E+05
7	-.147390E+04	.120000E+04	0.	-.200000E+01	0.	0.	6	0.

NUMBER OF ITERATIONS 5

PAYOUT STATUS
END NODE FLT. VELOCITY UNSTR. LEN. CURRENT LEN.
1 6 5 .20000E+01 .738000E+02 .742370E+02

SEADYN-- FREE FORMAT TEST CASE - CABLE LAYING

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TIME = .38000E+02 DYNAMIC INCREMENT = .380

NODE	X	Y	Z	VX	VY	VZ	ELL	TENSION
1	0.	0.	0.	0.	0.	0.	1	.101091E+05
2	-.497940E+03	.517266E+01	0.	-.196581E+00	-.677655E+00	0.	2	.123464E+05
3	-.909077E+03	.285343E+03	0.	-.422519E+00	-.131409E+01	0.	3	.167347E+05
4	-.121144E+04	.684964E+03	0.	-.798113E+00	-.167791E+01	0.	4	.248378E+05
5	-.144468E+04	.113065E+04	0.	-.123719E+01	-.171561E+01	0.	5	.167421E+05
6	-.147590E+04	.120000E+04	0.	-.117900E+01	-.182372E+01	0.	6	0.
7	-.147590E+04	.120000E+04	0.	-.200000E+01	0.	0.	7	0.

NUMBER OF ITERATIONS = 5

PAYOUT STATUS
 ENG NODE ELL. VELOCITY UNSTR. LEN. CURRENT LEN.
 1 6 5 .200000E+01 .758000E+02 .760564E+02

TIME = .39000E+02 DYNAMIC INCREMENT = .390

NODE	X	Y	Z	VX	VY	VZ	ELL	TENSION
1	0.	0.	0.	0.	0.	0.	1	.103169E+05
2	-.697967E+03	.444333E+01	0.	-.275734E+02	-.714017E+00	0.	2	.119847E+05
3	-.909487E+03	.283988E+03	0.	-.402965E+00	-.137125E+01	0.	3	.172621E+05
4	-.121228E+04	.683341E+03	0.	-.684828E+00	-.191199E+01	0.	4	.220776E+05
5	-.144575E+04	.112460E+04	0.	-.174064E+01	-.589761E+00	0.	5	.167411E+05
6	-.147790E+04	.120000E+04	0.	-.117884E+01	-.182365E+01	0.	6	0.
7	-.147790E+04	.120000E+04	0.	-.200000E+01	0.	0.	7	0.

NUMBER OF ITERATIONS = 3

PAYOUT STATUS
 ENG NODE ELL. VELOCITY UNSTR. LEN. CURRENT LEN.
 1 6 5 .200000E+01 .778000E+02 .783078E+02

TIME = .40000E+02 DYNAMIC INCREMENT = .400

NODE	X	Y	Z	VX	VY	VZ	ELL	TENSION
1	0.	0.	0.	0.	0.	0.	1	.104534E+05
2	-.497987E+03	.368574E+01	0.	-.362707E+01	-.744394E+00	0.	2	.123464E+05
3	-.909938E+03	.282662E+03	0.	-.416711E+00	-.136023E+01	0.	3	.168175E+05
4	-.121311E+04	.681674E+03	0.	-.451077E+00	-.143446E+01	0.	4	.229748E+05
5	-.144691E+04	.112685E+04	0.	-.408121E+00	-.138311E+01	0.	5	.167607E+05
6	-.147900E+04	.120000E+04	0.	-.117820E+01	-.182336E+01	0.	6	0.
7	-.147900E+04	.120000E+04	0.	-.200000E+01	0.	0.	7	0.

NUMBER OF ITERATIONS = 5

PAYOUT STATUS
 ENG NODE ELL. VELOCITY UNSTR. LEN. CURRENT LEN.
 1 6 5 .200000E+01 .798000E+02 .802393E+02

STEADY-- FREE FORMAT TEST CASE - CABLE LAYING

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TIME = .40000E+02 DYNAMIC INCREMENT = .401

MODE	X	Y	Z	VA	VY	VZ	U
1	0.	0.	0.	0.	0.	0.	11.051394
2	-.497987E+03	-.368574E+01	0.	-.262707E-01	0.	0.	-10.85134E+05
3	-.989936E+03	-.262662E+03	0.	-.416731E+00	-.784394E+00	0.	-12.54860E+05
4	-.121311E+04	-.681679E+03	0.	-.951077E+00	-.136023E+01	0.	-1.68175E+05
5	-.144693E+04	-.112685E+04	0.	-.408121E+00	-.143846E+01	0.	-2.29743E+05
6	-.147990E+04	-.120000E+04	0.	-.117820E+01	-.338311E+01	0.	-2.76020E+05
7	-.147990E+04	-.120000E+04	0.	-.200000E+01	-.162336E+01	0.	0.

NUMBER OF ITERATIONS 2

PAYOUT STATUS	VELOCITY	UNSTR. LEN.	CURRENT LEN.
END MODE 1 6 5	.200000E+01	-.798000E+02	-.802393E+02

STATUS-- FREE FORMAT TEST CASE - CABLE LAYING

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LOAD CASE PARAMETERS

SUBANALYSIS TYPE = DYN

FIELD NODE COMPONENTS

11 12

NODE COMPONENT MOVEMENT DATA

MODE	TYPE	VARY CODE	AMPLITUDE	TYPE	VARY CODE	AMPLITUDE	TYPE	VARY CODE	AMPLITUDE
1	2	0	-.20000E+01	2	0	0.	2	0	0.

TIME STEP DATA

INITIAL TIME STEP	=	.10000E+00
MAXIMUM TIME	=	.50000E+02
BEGINNING TIME	=	.40000E+02
UPDATE TIME	=	.10000E+00
ALPHA.BETA.GAMMA	=	0.

.63333E-01

.50000E+00

OUTPUT DATA SELECTIONS

STEP NUMBER INTERVAL	=	10
PARAMETER INTERVAL	=	.10000E+01
DEBUG OUTPUT FLAG	=	0

SLADYN-- FILE FORMAT TEST CASE - CABLE LAYING

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SOLUTION OPTION SUMMARY

ANALYSIS TYPE - DYN
SOLUTION FORM - DIM

DYN. INIT. COND. CODE = 0
OUTPUT INTERVAL = 10
DEBUG PRINT CODE = 0
RESTART FILE FLAG = 0
UPDATE OPTION = 1
START UP OPTION = 0
NO. OF POINT LOADS = 0
FLOW FIELD NUMBER = 0
NUMBER OF MOVLD NODES = 1

DIRECT ITERATION METHOD DYNAMIC PARAMETERS
DEFLECT. ERROR TOLERANCE = .10000E-02

ADDE COMPONENT FIXITIES ALTERED

ELEMENT	EA	UNIT MASS	LENGTH	TIME STEP
1	.50000E+07	.22242E+00	.498001E+03	.159190E+00
2	.50000E+07	.22222E+00	.49752E+03	.158978E+00
3	.53333E+07	.521873E+00	.50112E+03	.154438E+00
4	.50000E+07	.52112E+00	.502840E+03	.160337E+00
5	.50000E+07	.52064E+00	.802393E+02	.255617E-01

TIME STEP DATA

INITIAL TIME STEP = .10000E+00
MAXIMUM TIME = .50000E+02
BEGINNING TIME = .40000E+02
UPDATE TIME = .10000E+00
ALPHA,BETA,GAMMA = 0.
.8333E-01 .50000E+00

SEADYN-- FREE FORMAT TEST CASE - CABLE LAYING

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OUTPUT TIME INTERVAL = .100000E+01

TIME = .40000E+02 DYNAMIC INCREMENT = .401

NODE	X	Y	Z	VX	VY	VZ	ELF	FUNCTION
1	0.	0.	0.	0.	0.	0.	1	.104534E+03
2	-.547907E+03	.168574E+01	0.	-.362707E-01	-.745394E+00	0.	2	.123486E+03
3	-.909936E+03	.28262E+03	0.	-.416731E+00	-.136023E+01	0.	3	.160175E+03
4	-.121311E+04	.681679E+03	0.	-.951077E+00	-.143846E+01	0.	4	.223948E+03
5	-.144693E+04	.112685E+04	0.	-.08121E+00	-.138311E+01	0.	5	.276020E+03
6	-.147990E+04	.120000E+04	0.	-.117820E+01	-.182336E+01	0.	6	0.
7	-.147990E+04	.120000E+04	0.	-.200000E+01	0.	0.	7	0.

NUMBER OF ITERATIONS 0

TIME = .41000E+02 DYNAMIC INCREMENT = .411

NODE	X	Y	Z	VX	VY	VZ	ELF	FUNCTION
1	-.769958E+01	-.483410E+01	0.	-.776118E+01	-.647888E+01	0.	1	0.
2	-.502945E+03	.221909E+01	0.	-.979894E+01	-.232224E+01	0.	2	.175560E+04
3	-.912954E+03	.293200E+03	0.	-.565977E+01	.170874E+01	0.	3	.616230E+04
4	-.121486E+04	.681593E+03	0.	-.232953E+01	.210268E+01	0.	4	.189794E+03
5	-.144837E+04	.112647E+04	0.	-.209740E+01	.175988E+01	0.	5	.177954E+03
6	-.147990E+04	.120000E+04	0.	0.	0.	0.	6	0.
7	-.148170E+04	.120000E+04	0.	-.200000E+01	0.	0.	7	0.

NUMBER OF ITERATIONS 5

STEP 420 CONVERGED IN 2 ITERATIONS. NEW DT AND DTU = .11315E+00

TIME = .42013E+02 DYNAMIC INCREMENT = .421

NODE	X	Y	Z	VX	VY	VZ	ELF	FUNCTION
1	-.161646E+02	-.113602E+02	0.	-.968225E+01	-.637014E+01	0.	1	0.
2	-.512312E+03	.876608E+00	0.	-.674209E+01	0.	0.	2	0.
3	-.918043E+03	.282005E+03	0.	-.323251E+01	-.431084E+01	0.	3	.162871E+04
4	-.121463E+04	.681491E+03	0.	-.320327E+01	-.274101E+01	0.	4	.293491E+04
5	-.145023E+04	.112557E+04	0.	-.202749E+01	-.237476E+01	0.	5	.206571E+03
6	-.147970E+04	.120000E+04	0.	0.	0.	0.	6	0.
7	-.148393E+04	.120000E+04	0.	-.200000E+01	0.	0.	7	0.

NUMBER OF ITERATIONS 5

STEADY- FREE FORMAT TEST CASE - CABLE LAYING

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TIME	0.40321E+02	DYNAMIC INCREMENT	430
MODE	X	Y	Z
1	-2.55260E+02	-1.78386E+02	0.
2	-5.18155E+03	-8.28606E+00	0.
3	-9.22181E+03	-2.78679E+03	0.
4	-1.22159E+04	-6.78832E+03	0.
5	-1.45222E+04	-1.12490E+04	0.
6	-1.47990E+04	-1.20000E+04	0.
7	-1.48598E+04	-1.20000E+04	0.

NUMBER OF ITERATIONS 7

TIME	0.40501E+02	DYNAMIC INCREMENT	439
MODE	X	Y	Z
1	-3.04580E+02	-2.43233E+02	0.
2	-5.22604E+03	-8.28606E+00	0.
3	-9.27819E+03	-2.76728E+03	0.
4	-1.22563E+04	-6.77905E+03	0.
5	-1.45334E+04	-1.12492E+04	0.
6	-1.47990E+04	-1.20000E+04	0.
7	-1.48800E+04	-1.20000E+04	0.

NUMBER OF ITERATIONS 7

TIME	0.44959E+02	DYNAMIC INCREMENT	447
MODE	X	Y	Z
1	-3.40333E+02	-3.01205E+02	0.
2	-5.25639E+03	-8.28606E+00	0.
3	-9.31430E+03	-2.73602E+03	0.
4	-1.22843E+04	-6.75775E+03	0.
5	-1.45422E+04	-1.12430E+04	0.
6	-1.47990E+04	-1.20000E+04	0.
7	-1.48981E+04	-1.20000E+04	0.

NUMBER OF ITERATIONS 7

TIME	0.44959E+02	DYNAMIC INCREMENT	447
MODE	X	Y	Z
1	-3.40333E+02	-3.01205E+02	0.
2	-5.25639E+03	-8.28606E+00	0.
3	-9.31430E+03	-2.73602E+03	0.
4	-1.22843E+04	-6.75775E+03	0.
5	-1.45422E+04	-1.12430E+04	0.
6	-1.47990E+04	-1.20000E+04	0.
7	-1.48981E+04	-1.20000E+04	0.

NUMBER OF ITERATIONS 7

TIME	0.44959E+02	DYNAMIC INCREMENT	447
MODE	X	Y	Z
1	-3.40333E+02	-3.01205E+02	0.
2	-5.25639E+03	-8.28606E+00	0.
3	-9.31430E+03	-2.73602E+03	0.
4	-1.22843E+04	-6.75775E+03	0.
5	-1.45422E+04	-1.12430E+04	0.
6	-1.47990E+04	-1.20000E+04	0.
7	-1.48981E+04	-1.20000E+04	0.

NUMBER OF ITERATIONS 7

TIME	0.44959E+02	DYNAMIC INCREMENT	447
MODE	X	Y	Z
1	-3.40333E+02	-3.01205E+02	0.
2	-5.25639E+03	-8.28606E+00	0.
3	-9.31430E+03	-2.73602E+03	0.
4	-1.22843E+04	-6.75775E+03	0.
5	-1.45422E+04	-1.12430E+04	0.
6	-1.47990E+04	-1.20000E+04	0.
7	-1.48981E+04	-1.20000E+04	0.

NUMBER OF ITERATIONS 7

SEADYN-- FREE FORMAT TEST CASE - CABLE LAYING

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10/02/01

TIME = .45973E+02 DYNAMIC INCREMENT = .456

NODE	X	Y	Z	VX	VY	VZ	ELI	TENSION
1	-.362710E+02	-.167161E+02	0.	-.116450E+01	-.651017E+01	0.	1	0.
2	-.528930E+03	-.828606E+00	0.	-.280780E+01	0.	0.	2	0.
3	-.937004E+03	-.271635E+03	0.	-.501387E+01	-.388747E+01	0.	3	0.
4	-.123219E+04	-.678616E+03	0.	-.243912E+01	-.306072E+01	0.	4	.879939E+05
5	-.145394E+04	-.112434E+04	0.	-.102416E+01	-.189137E+01	0.	5	.108656E+05
6	-.147990E+04	-.120000E+04	0.	0.	0.	0.	6	0.
7	-.149185E+04	-.120000E+04	0.	-.200000E+01	0.	0.		

NUMBER OF ITERATIONS 5

TIME = .46092E+02 DYNAMIC INCREMENT = .465

NODE	X	Y	Z	VX	VY	VZ	ELI	TENSION
1	-.361424E+02	-.434398E+02	0.	-.127925E+00	-.658791E+01	0.	1	.264194E+04
2	-.531594E+03	-.828606E+00	0.	-.208982E+01	0.	0.	2	0.
3	-.941194E+03	-.268263E+03	0.	-.591447E+01	-.116830E+01	0.	3	.872708E+04
4	-.123539E+04	-.672512E+03	0.	-.321307E+01	-.118748E+01	0.	4	.107103E+05
5	-.145394E+04	-.112404E+04	0.	-.714923E+00	-.356580E+00	0.	5	.300131E+05
6	-.147990E+04	-.120000E+04	0.	0.	0.	0.	6	0.
7	-.149388E+04	-.120000E+04	0.	-.200000E+01	0.	0.		

NUMBER OF ITERATIONS 5

TIME = .48010E+02 DYNAMIC INCREMENT = .474

NODE	X	Y	Z	VX	VY	VZ	ELI	TENSION
1	-.37621E+02	-.498429E+02	0.	-.248458E+01	-.636415E+01	0.	1	0.
2	-.532189E+03	-.828606E+00	0.	-.404182E+00	0.	0.	2	0.
3	-.946518E+03	-.265950E+03	0.	-.374008E+01	-.387658E+01	0.	3	.539514E+05
4	-.123901E+04	-.671291E+03	0.	-.337328E+01	-.199112E+01	0.	4	.106472E+05
5	-.145383E+04	-.112457E+04	0.	.201296E+00	-.162264E+01	0.	5	.2734039E+05
6	-.147490E+04	-.120000E+04	0.	0.	0.	0.	6	0.
7	-.149592E+04	-.120000E+04	0.	-.200000E+01	0.	0.		

NUMBER OF ITERATIONS 5

SLADYN-- FREE FORMAT TEST CASE - CABLE LAYING

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TIME = .55029E+02 DYNAMIC INCREMENT = 403

NODE	A	X	Y	Z	VX	VY	VZ	LLI	LLS
1	-.508332E+02	-.565725E+02	0.	0.	-.520704E+00	-.667044E+01	0.	1	0.
2	-.512596E+03	-.528606E+00	0.	0.	-.394559E+00	0.	0.	2	0.
3	-.571082E+03	-.263046E+03	0.	0.	-.588801E+01	-.192503E+01	0.	3	-.373351E+04
4	-.124210E+04	-.669305E+03	0.	0.	-.361072E+01	-.527367E+00	0.	4	-.195081E+05
5	-.145415E+04	-.112424E+04	0.	0.	-.104799E+01	-.259328E+01	0.	5	-.130741E+05
6	-.147990E+04	-.120000E+04	0.	0.	0.	0.	0.	6	0.
7	-.149796E+04	-.120000E+04	0.	0.	-.200000E+01	0.	0.	7	0.

NUMBER OF ITERATIONS 5

TIME = .50000E+02 DYNAMIC INCREMENT = 492

NODE	X	Y	Z	VX	VY	VZ	LLI	LLS
1	-.397004E+02	-.630371E+02	0.	0.	-.257662E+01	-.527809E+01	1	0.
2	-.522798E+03	-.828606E+00	0.	0.	-.687575E+00	0.	2	-.252167E+04
3	-.936067E+03	-.268080E+03	0.	0.	-.379351E+01	-.344700E+01	3	-.539348E+04
4	-.124552E+04	-.668283E+03	0.	0.	-.267086E+01	-.246166E+01	4	-.511490E+04
5	-.145459E+04	-.112403E+04	0.	0.	-.313565E+02	-.293537E+01	5	-.867027E+04
6	-.147990E+04	-.120000E+04	0.	0.	0.	0.	6	-.174067E+05
7	-.149900E+04	-.120000E+04	0.	0.	-.200000E+01	0.	7	0.

NUMBER OF ITERATIONS 3

STEADY-- STEADY STATE FORM - TEST CASE No. 5 - CATEGORY

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N P N P M U S E L M U A T A

NUMBER OF NODES = 4
 NUMBER OF ELEMENTS = 1
 GRAVITY DIRECTION = -2
 DYNAMIC OPTION FLAG = 1
 INPUT ECHO FLAG = 1
 DRAG MODEL OVERRIDE = 0
 SHIP LOAD FILE FLAG = 0

15.7

WBASE =

GRAVITATIONAL ACCELERATION = -321700E+02

SEADYN-- SEADYN FPLA FORM - TEST CASE NO. 5 - CATINARY

FLUID PROPS DEFINITIONS

INTERFACIAL TENSION KINEMATIC VISCOSITY SPECIFIC WEIGHT

1 0.

.17700E-04

.66000E+02

4

Model	α	β	L	CONSTRAINTS
1	0	-0.100000E+01	0	1
2	0	0	0	1
3	-0.150000E+01	0	0	1

Model	α	β	L	CONSTRAINTS
1	0	-0.100000E+01	0	1
2	0	0	0	1
3	-0.150000E+01	0	0	1

STADYN-- STADYN FOR FORM - TEST CASE No. 5 - CATERPILLAR

100 0000 100 0000 100 0000

GENERATION OF LINES OF NODES
 NUMBER BEGIN NODE END NODE DIFFERENCE R.C. FIRST ADD CDD
 2 1 4 1 0 2 1
 C.SPAN+SPAN .20000E+02 .15000E+03 .10000E+03

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STADYN-- STADYN FREE FORM - TEST CASE NO. 5 - CATHARIS

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ELEMENT INPUT DATA

EL	N1	N2	N3	MAI	KOMP	FLAG	TENSION	LENGTH	MEDIUM
1	1	2	0	1	0	-1	0.	0.	1
1	1	4	0	1	0	-1	0.	0.	1

STEADY-- STEADY FLOW CORR - TEST CASE NO. 5 - CATHARIS

CLIENT PRE-TESTING DATA

REGION	END	INCK	CODE	REGION
1	3	1	1	0.

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STEALYN-- STADTH FUEL FORM - TEST CASE NO. 5 - CATERPILAR

LABOR MATERIAL PROPERTY DATA

PROPERTY SET NO. = 1
DRAG COEF. NO. = 0
DIAMETER = .220000E+00
WEIGHT PER UNIT LENGTH = .260000E+01
ADDED MASS COEFFICIENT = .100000E+01
REFERENCE MEDIUM CODE = 1
ULTIMATE TENSION = 0.
MASS PER UNIT LENGTH = .159826E+00
NO. OF POINTS ON TENSION/STRAIN CURVE = 6
EXPONENT FORM COEFFICIENTS .100000E+07 .100000E+01

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SEADYN-- SEADYN'S FILE FORM - TEST CASE NO. 5 - CATEGORY

LIMIT LOCATION DATA

BEGIN END INCH LIMIT SET
1 1 1 1

STADYN-- STADYN FILE F004 - TEST CASE 00. N - CALL CASE

TYPE FUNCTION DEFINITIONS

FN. NUMBER	CODE	PARAMETERS			
1	-1	.600000E01	0.	0.	0.
		0.	0.	0.	0.
		0.	0.	0.	0.
		0.	0.	0.	0.

STATION-- STATION FOR CODE - TEST CASE NO. 9 - CULINARY

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NODE POINT DATA SUMMARY

NO.	INITIAL COORDINATES		FLATY COORDS		LIMIT		FUDY		GRAVITY		LOADS		X		Y		TOTAL MASS	
	X	Y	Z	X	Y	Z	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1	0.	-0.1000E+03	0.	1	1	1	1	1	0.	0.	-0.1000E+03	0.	1000000.	1000000.	1000000.	1000000.	1000000.	1000000.
2	-0.1000E+03	-0.1000E+03	0.	0	0	0	1	1	0.	0.	-0.1562E+03	0.	2000000.	2000000.	2000000.	2000000.	2000000.	2000000.
3	-0.1000E+03	-0.1000E+03	0.	0	0	0	1	1	0.	0.	-0.1140E+03	0.	1500000.	1500000.	1500000.	1500000.	1500000.	1500000.
4	-0.1000E+03	0.	0.	1	1	1	0	0	0.	0.	-0.5000E+03	0.	500000.	500000.	500000.	500000.	500000.	500000.

SEADYN-- SEADYN FREE FORM - TEST CASE NO. 5 - CATALAN

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ELEMENT SUMMARY DATA

ELEMENT CONNECTION DATA			MAT		COMP		MED.	INITIAL		UNSTABLE		INITIAL		RESIDUAL	
NO.	N1	N2	N3	NO.	CODE	CODE		TENSION	LENGTH	LENGTH	LENGTH	LENGTH	LENGTH	MASS	MASS
1	1	2	3	1	0	1	1	.40000E+02	.10044E+03	.10044E+03	.10044E+03	.10044E+03	.10044E+03	.49082E+01	.49082E+01
2	2	3	4	1	0	1	1	.61783E+02	.55722E+02	.55722E+02	.55722E+02	.55722E+02	.55722E+02	.27208E+01	.27208E+01
3	3	4	5	1	0	1	1	.17569E+03	.59092E+02	.59092E+02	.59092E+02	.59092E+02	.59092E+02	.20053E+01	.20053E+01

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SEADYN-- SEADYN FILE FORM - TEST CASE NO. 5 - CATENARY

ADDITIONAL ELEMENT DATA

ELEMENT	SLIPES	TRANSIT TIME (APPROX)
1	0.00000E+01	0.00000E+01
2	0.00000E+00	0.00000E+01
3	0.00000E+00	0.00000E+01

HALF-MANUITYTH = 6

SEADYN-- SEADYN EXEC FORM - TEST CASE NO. 5 - CATALOG

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CLAE CASE PARAMETERS

SUBANALYSIS TYPE = DEAD

SOLUTION DATA RESET VRR
OUTPUT DATA SELECTIONS
STEP NUMBER INTERVAL = 10
PARAMETER INTERVAL = 0.
DEBUG OUTPUT FLAG = 0

STEADY-- STEADY STATE FORM - TEST CASE NO. 5 - CATHAMV

10/00/01 10.14.21.0 PA00 10

SOLUTION UPDATE SUMMARY

ANALYSIS TYPE - DEAD
SOLUTION FORM - VMC

NO. OF STATIC STEPS = 1
OUTPUT INTERVAL = 10
DEBUC PRINT CODE = 0
RESTART FILE FLAG = 0
UPDATE OPTION = 1
START UP OPTION = 0
NO. OF POINT LOADS = 0
PLUM FIELD NUMBER = 0

VISCOUS RELAXATION SOLUTION PARAMETERS
INTEGRATION PARAMETER = .100001+01
INITIAL STEP SIZE = .100001+01
INITIAL DAMPING = .100001-02
ITERATION LIMIT = 200

STEADY-- STEADY FREE FORM - TEST CASE NO. 5 - CATALAN

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DEAD LOAD INCREMENT - 0				LOAD FACTOR				0.			
MODE	X	Y	Z	UX	UY	VZ	ALL	UX	UY	VZ	ALL
1	0.	-0.100000E+03	0.	0.	0.	0.	1	1.00000E+02	0.	0.	1
2	-0.100442E+03	-0.100000E+03	0.	0.	0.	0.	2	0.117871E+02	0.	0.	2
3	-0.116544E+03	-0.575500E+02	0.	0.	0.	0.	3	0.117500E+03	0.	0.	3
4	-0.150000E+03	0.	0.	0.	0.	0.					

DEAD LOAD INCREMENT - 2				LOAD FACTOR				-0.00001E+01			
MODE	X	Y	Z	UX	UY	VZ	ALL	UX	UY	VZ	ALL
1	0.	-0.100000E+03	0.	0.	0.	0.	1	1.00000E+02	0.	0.	1
2	-0.100442E+03	-0.100000E+03	0.	0.	0.	0.	2	0.117871E+02	0.	0.	2
3	-0.116544E+03	-0.575500E+02	0.	0.	0.	0.	3	0.117500E+03	0.	0.	3
4	-0.150000E+03	0.	0.	0.	0.	0.					

SLADYN-- SLADYN FILE FORM - TEST CASE NO. 5 - CATEGORY

L U A U C A S I P A R A M E T E R S

SUBANALYSIS TYPE = DYN

SOLUTION DATA RESET DEF

TIME STEP DATA
 INITIAL TIME STEP = .10000E-01
 MAXIMUM TIME = .90000E+01
 BEGINNING TIME = 0.
 UPDATE TIME = .10000E-01
 ALPHA,BETA,GAMMA = 0.
 FREED NODE COMPONENTS

.93333E-01 .50000E+00

NODE COMPONENT MOVEMENT DATA

NODE	TYPE	VARY CODE	AMPLITUDE	TYPE	VARY CODE	AMPLITUDE	VARY CODE	AMPLITUDE
4	0	0	0.	1	1	.20000E+01	0	0.

OUTPUT DATA SELECTIONS

STEP NUMBER INTERVAL = 50
 PARAMETER INTERVAL = 0.
 DEBUG OUTPUT FLAG = 0

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STEADY-STATE PULSED FLOW - FIRST CASE NO. 5 - CATERMAY

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OUTPUT TIME INTERVAL = .500000E+00

LINE = 0. DYNAMIC INCREMENT = 0

NODE	X	Y	Z
1	0.	-.100000E+03	0.
2	-.100442E+03	-.100000E+03	0.
3	-.136562E+03	-.575487E+02	0.
4	-.150000E+03	0.	0.

TIME = 0. FUNCTION

LINE	VALUE
1	-.100442E+03
2	-.575487E+02
3	-.162637E+03

NUMBER OF ITERATIONS

TIME = .50000E+00 DYNAMIC INCREMENT = 50

NODE	X	Y	Z
1	0.	-.100000E+03	0.
2	-.100442E+03	-.976250E+02	0.
3	-.136562E+03	-.543114E+02	0.
4	-.150000E+03	-.100000E+01	0.

TIME = 1. FUNCTION

LINE	VALUE
1	-.976250E+02
2	-.543114E+02
3	-.536034E+03

NUMBER OF ITERATIONS

TIME = .10000E+01 DYNAMIC INCREMENT = 100

NODE	X	Y	Z
1	0.	-.100000E+03	0.
2	-.100333E+03	-.957604E+02	0.
3	-.134740E+03	-.518894E+02	0.
4	-.150000E+03	-.519615E+01	0.

TIME = 2. FUNCTION

LINE	VALUE
1	0.
2	-.854770E+03
3	0.

NUMBER OF ITERATIONS

TIME = .15000E+01 DYNAMIC INCREMENT = 150

NODE	X	Y	Z
1	0.	-.100000E+03	0.
2	-.100277E+03	-.950552E+02	0.
3	-.134233E+03	-.508996E+02	0.
4	-.150000E+03	-.600000E+01	0.

TIME = 3. FUNCTION

LINE	VALUE
1	0.
2	-.846743E+03
3	0.

NUMBER OF ITERATIONS

STADYN-- STADYN EXEC FORM - TEST CASE NO. 5 - CATERGARY

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TIME = .500000E+01 DYNAMIC INCREMENT = 500
 NUMBER OF ITERATIONS 2

ITER	X	Y	Z
1	0.	-0.100000E+03	0.
2	-0.978890E+02	-0.101860E+03	0.
3	-0.131130E+03	-0.611940E+02	0.
4	-0.150000E+03	-0.550190E+02	0.

ITER	XX	YY	ZZ	TENSION
1	0.	0.	0.	0.
2	-0.124355E+03	-0.107670E+03	0.	0.
3	-0.201410E+03	-0.207945E+03	0.	0.
4	0.	-0.511700E+03	0.	0.

TIME = .500000E+01 DYNAMIC INCREMENT = 500
 NUMBER OF ITERATIONS 4

ITER	X	Y	Z
1	0.	-0.100000E+03	0.
2	-0.972250E+02	-0.103404E+03	0.
3	-0.131360E+03	-0.620794E+02	0.
4	-0.150000E+03	-0.600000E+02	0.

ITER	XX	YY	ZZ	TENSION
1	0.	0.	0.	0.
2	-0.122700E+03	-0.106300E+03	0.	0.
3	-0.104524E+03	-0.783240E+02	0.	0.
4	0.	-0.328694E+03	0.	0.094550E+02

TIME = .500000E+01 DYNAMIC INCREMENT = 500
 NUMBER OF ITERATIONS 4

ITER	X	Y	Z
1	0.	-0.100000E+03	0.
2	-0.967944E+02	-0.104820E+03	0.
3	-0.132180E+03	-0.612240E+02	0.
4	-0.150000E+03	-0.519615E+02	0.

ITER	XX	YY	ZZ	TENSION
1	0.	0.	0.	0.
2	-0.262628E+03	-0.537947E+03	0.	0.
3	-0.260507E+03	-0.134130E+03	0.	0.
4	0.	-0.311304E+03	0.	0.000000E+00

TIME = .500000E+01 DYNAMIC INCREMENT = 500
 NUMBER OF ITERATIONS 3

ITER	X	Y	Z
1	0.	-0.100000E+03	0.
2	-0.944230E+02	-0.104078E+03	0.
3	-0.132480E+03	-0.594477E+02	0.
4	-0.150000E+03	-0.500000E+02	0.

ITER	XX	YY	ZZ	TENSION
1	0.	0.	0.	0.
2	-0.160514E+03	-0.110015E+03	0.	0.
3	-0.178075E+03	-0.469417E+02	0.	0.
4	0.	-0.542485E+03	0.	0.164440E+00

STEADY-STATE FLOW - FIRST CASE NO. 5 - CATHARY

TIME = .60000E+01 DYNAMIC INCREMENT = 500

NODE	X	Y	Z
1	0.	-.100000E+03	0.
2	-.100501E+03	-.101973E+03	0.
3	-.132580E+03	-.565369E+02	0.
4	-.150000E+03	-.556897E+02	0.

NUMBER OF ITERATIONS 3

TIME = .65000E+01 DYNAMIC INCREMENT = 650

NODE	X	Y	Z
1	0.	-.100000E+03	0.
2	-.100547E+03	-.991973E+02	0.
3	-.132301E+03	-.533915E+02	0.
4	-.150000E+03	-.100000E+01	0.

NUMBER OF ITERATIONS 5

TIME = .70000E+01 DYNAMIC INCREMENT = 700

NODE	X	Y	Z
1	0.	-.100000E+03	0.
2	-.100408E+03	-.970732E+02	0.
3	-.131872E+03	-.510296E+02	0.
4	-.150000E+03	-.519615E+01	0.

NUMBER OF ITERATIONS 4

TIME = .75000E+01 DYNAMIC INCREMENT = 750

NODE	X	Y	Z
1	0.	-.100000E+03	0.
2	-.100324E+03	-.962287E+02	0.
3	-.131596E+03	-.500690E+02	0.
4	-.150000E+03	-.600000E+01	0.

NUMBER OF ITERATIONS 6

TIME = .75000E+01 DYNAMIC INCREMENT = 750

NODE	X	Y	Z
1	0.	-.100000E+03	0.
2	-.100324E+03	-.962287E+02	0.
3	-.131596E+03	-.500690E+02	0.
4	-.150000E+03	-.600000E+01	0.

TIME = .75000E+01 DYNAMIC INCREMENT = 750

NODE	X	Y	Z
1	0.	-.100000E+03	0.
2	-.100324E+03	-.962287E+02	0.
3	-.131596E+03	-.500690E+02	0.
4	-.150000E+03	-.600000E+01	0.

TIME = .75000E+01 DYNAMIC INCREMENT = 750

NODE	X	Y	Z
1	0.	-.100000E+03	0.
2	-.100324E+03	-.962287E+02	0.
3	-.131596E+03	-.500690E+02	0.
4	-.150000E+03	-.600000E+01	0.

TIME = .75000E+01 DYNAMIC INCREMENT = 750

NODE	X	Y	Z
1	0.	-.100000E+03	0.
2	-.100324E+03	-.962287E+02	0.
3	-.131596E+03	-.500690E+02	0.
4	-.150000E+03	-.600000E+01	0.

NUMBER OF ITERATIONS 6

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